# Revision of Chinese Macrosiphinae*

(Aphidae, Homoptera)

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## Characteristics of the Subfamily Macrosiphinae

Head with well developed antennal or frontal tubercles. Frontal sinus concave, straight, slightly convex or protruded into a median frontal tubercle. Dorsum of head, frons and frontal tubercles smooth, spinulose, granular or imbricated. Frontal tubercles diverging, parallel or converging on the mesal side which sometimes protruded into a projection. Antennae 6 rarely 5 segmented, 1st gibbous, 1st and 2nd segment scabrous sometimes 1st segment protruded forwards into a finger-like tubercle, 3rd segment without or with secondary rhinaria, if present, one or some near the base on the basal half rarely more than 10 extending to the whole length in a single row or irregularly scattered, 4th never with secondary rhinaria, primary rhinaria of 5th and base of 6th segment normal, processus terminalis much longer than the base, rarely as long as or little longer than the base. Eyes with distinct ocular tubercles, rarely indistinct. Rostrum 4 segmented, penultimate segment usually broader, subequal to or shorter than ultimate segment, with fewer setae on lateral side; ultimate segment narrower, longer than the preceeding segment, with 2 or 3 primary setae on each side, number and location of secondary setae variable; apical end of rostrum elongate, shortened or triangular form. Legs normal with the exception of Genus *Shinjia* which the tarsi atrophied and lacking claws too. Siphunculi variable in form, but at least longer than wide, smooth, minutely spinulose, striated, imbricated, scaly, cylindrical, expanded at base and narrowed towards apex, swollen near middle length and narrowed at both ends; flange present or absent, if present with some striae or reticulation below the flange or reticulated extending beyond distal half. Cauda elongate, little narrowed near middle, tapering, abruptly conical, rarely pentagonal. spinose, with 2 to more than 10 setae on each side. Anal plate rounded, spinose, with some setae on the outer side, Body intugment smooth, corrugated, mosaic form, networked. Setae simple or capitate, stiff or flexible. Dorsum sometimes with finger like, imbricated projections, which adorned with capitate setae. Spinal, spiracular, marginal, lateral, dorsal, ante-and postsiphuncular sclerites present or absent.

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3rd, Or 3rd, 4th and 5th antennal segment of alate with secondary rhinaria which arranged regularly extending or irregularly scattered over the whole length. Wing membrane transparent, smooth, or punctured on the outer margin, veins clear, infuscated or blackened along the veins, venation normal or radius and media of fore wing fused at certain length, hind wing sometimes without cubitus and more or less reduced in size and forms. Abdominal sclerites more prominent than in the aptera and sometimes fused into a large central quadrangular patch.

## Key to genera and species of the Chinese Macrosiphinae

1. Tarsi rudimentary, minute, without claws. On ferns.…… *Shinjia* Takahashi, 1938
   Only one species known from China, i. e. *pteridifoliae* (Shinji, 1928).
   Synonym: *Microtarsus pteridifoliae* Shinji, 1928. Host: Fern. Distribution: Chekiang, Szechuan; Japan.

1′. Tarsi normal, with distinct claws, on various kinds of plant. …… 2

2. Wing venation characteristic, the radius fused with the media for part its length and the hind wing with only one oblique vein. On banana.…… *Pentalonia* Coquerel, 1959
   Only one species known from China, i. e. *nigronervosa* Coquerel, 1959.
   Synonym: *Pentalonia caladii* van der Goot, 1917. Hosts: *Alipinia speciosa*, *Musa* spp. *Languas speciosa*, *Zingiber kawageii*. Distribution: Taiwan, Kwangtung; India, Malaya, Philippines, Sumatra, Australia, New Zealand, Hawaii, South America, Africa.

2′. Wing venation normal but hind wing sometimes reduced and without cubitus. …… 3

3. Boby with finger like tubercles. …… 4

3′. Boby without finger like tubercles. …… 5

4. 1st Antennal segment protruded inward into finger like projection. Boby with finger like projections and adorned with capitate hairs. Head and antennae with capitate hairs. On *Rubus*.…… *Matsumuraja* Schumacher. 1921
   There are 3 species known from China. They may be separated as follow:
   a. Last 2 abdominal finger like projections much longer than 1st antennal segment.…… *rubicola* Takahashi, 1927
   Host: *Rubus* sp. Distribution: Taiwan.
   a′. Last 2 abdominal finger like projections shorter and smaller than 1st antennal segment.……b
   b. Siphunculi swollen at distal one fourth. Finger like projections small.…… *rubifoliae* (Takahashi, 1922)
   Synonyms: *Neophorodon rubi* Takahashi nec Matsumura 1923; *Acanthaphis zeni* Tseng et Tao, 1938; *Matsumuraja rubifoliae* var. *taiheisana* Takahashi, 1938; *Matsumuraja rubifoliae* var. *taiheisana* Takahashi, 1939. Host: *Rubus*

sp. Distribution: Taiwan. Szechuan, Sikong; Ryukyu, Japan. Primary host: *Clethra barvinervis* in Japan.

b′. Siphunculi cylindrical throughoutly. Finger like projections large. ..... *formosana* Takahashi, 1925

Host: *Rubus* sp., Distribution: Taiwan, Szechuan.

4′. lst Antennal segment normal, little protruded, but never into finger like projection. Body with large finger like projections. Head and antennae without captiate hairs but instead of simple hairs. On *Hydrangea*. ..... *Tuberoaphis* Tseng et Tao, 1938

Only one species known from China, i. e. *hydrangeae* Tseng et Tao, 1938

Host. *Hydrangea aspera*. Distribution: Szechuan (Omeishan).

5. Head and body with capitate hairs. ..... 6

5′. Head and body without capitate hairs. ..... 9

6. Head with prominent median frontal tubercle, which higher and broader then frontal tubercles. ..... *Myzaphis* van der Goot, 1913

Only one species known from China, i. e. *rosarum* (Kaltenbach 1843).

Synonyms: *Aphis rosarum* Kaltenbach, 1843; *Myzus rosarum* Schoutden, 1906; *Myzaphis rosarum* Theobald, 1926. Host: *Rosa* sp.. Distribution: Sikong, Hopei; Europe; New Zealand.

6′. Head without prominent median frontal tubercle. ..... 7

7. 3rd Antennal segment without rhinaria. Last rostral segment with a short process on the apex. Migrating from Elaegnaceae to Compositae and *Polygonum* spp. or holocyclic on Compositae ..... *Capitophorus* van der Goot, 1913

There are 6 species known from China, they may be separated as follow:

a. Whole dorsal surface of abdomen with capitate hairs. ..... b

a′. A part of abdomen with capitate hairs. ..... e

b. Abdominal capitate hairs longer than 2nd antennal segment. ..... c

b′. Abdominal capitate hairs shorter than 2nd antennal segment. ..... d

c. Capitate hairs of 3rd antennal segment short, as long as the circumference of beared segment. ..... *formosartemisiae* (Takahashi, 1921)

Synonym: *Myzus formosartemisiae* Takahashi, 1921. Host: *Artemisia vulgaris* var. *indica*. Distribution: Taiwan, Szechuan, Shansi; Japan.

c′. Capitate hairs of 3rd antennal segment long. longer than the circumference of beared segment. ..... *takahashii* Strand, 1929

Synonym: *Capitophorus* sp. Takahashi, 1925. Host: *Petasites tricholobus*. Distribution: Taiwan.

d. Siphunculi swollen near the apex. ..... *hippophaes* var. *javanicus* H. R. Lambers, 1952.

Synonyms: *Aphis hippophaes* Walker, 1852: *Rhopalosiphum hippophaes* Koch, 1854; *Phorodon galeopsidii* Passerini, 1863. *Myzus elaegni* Davis, 1908. Hosts:

*Elaeagnus pungens*. *E. umbellata*, *Polygonum hydropiper*. *P. lapathifolium*. Distribution: Taiwan, Chekiang, Kingsu; Japan. Sumatra, Java; Europe.

d'. Siphunculi cylindrical, not swollen. ..... *elaeagni* (del Guercio, 1894)

Synonyms: *Myzus elaeagni* del Guercio, 1894; *Myzus braggii* Gillettes 1908, *Capitophorus carduinum* Davidson, 1912, *Capitophorus elaeagni* van der Goot, 1913; *Phorodon galeopsis* Matsumura, 1918, *Myzus carthusianorum* Harviland, 1919, *Capitophorus cynariella* Theobald, 1923, *Capitophorus flaveolus* Theobald, 1926, *Capitophorus cirsii* Nevsky, 1925, *Capitophorus arctifoliae* Shinji, 1924. Hosts: *Cirsium segetum*, *C. japonicum*. *Elaeagnus oldhami*. Distribution: Taiwan, Szechuan, Shantung; Japan. North America; Europe, Egypt.

e. Siphunculi swollen near the apex. ..... *gillettii* Theobald, 1926

Host: *Polygonum* sp.. Distribution: Taiwan, Szechuan, Sikong; Sumatra.

e'. Siphunculi cylindrical. ..... *montanus* Takahashi 1931

Synonym: *Capitophorus* sp. Takahashi, 1924. Host: *Cirsium japonicum*. Distribution: Taiwan.

7'. 3rd Antennal segment with secondary rhinaria. ..... 8

8. 3rd Antennal segment with only 1-3 secondary rhinaria near the base. Last rostral segment without a process, sitletto-shaped, with the longest hairs near the base. ..... *Pleotrichophorus* Borner, 1930

Only one species known from China, i. e. *glandulosus* (Kaltenbach 1846). Synonyms: *Aphis glandulosa* Kaltenbach, 1846; *Siphonophora artemisiae* Buckton, 1876; *Myzus pilosus* van der Goot, 1912; *Myzus glandulosus* van der Goot, 1913; *Capitophorus formosana* Takahashi, 1929; *Capitophorus glandulosa* Tseng et Tao, 1936. Hosts: *Artemisia vulgaris*, *Chrysanthemum sinensis*. Distribution: Taiwan, Szechuan, Shantung; Japan; Europe.

8'. 3rd Antennal segment always with some rhinaria confined to the basal half. Last rostral segment rostrate. Species migrating from *Ribis* sp. to Labiatae and holocyclic on Labiatae. ..... *Cryptomyzus* Oestlund, 1922

Only one species known from China, i. e. *taoi* H.R. Lambers, 1956. A cotype slide of this species was kept in H. R. Lambers's collection.

Synonym: *Capitophorus ribis* Tseng et Tao (nec Linnaeus, 1936). Host: *Marubium supinum*. Distribution: Szechuan, Chekiang.

9. Frontal tubercles protruded inward into a projection. ..... 10

9'. Frontal tubercles not protruded into a projection. ..... 11

10. Antennae 5 rarely 6 segmented, processus terminalis as long as or little longer than the base. Cauda knobbed. On *Polygonum*. ..... *Akkaia* Takahashi. 1919

There are 2 species known from China. They may be separated as follow:

a. Processus terminalis about twice as long as the base. Siphunculi blackish brown; cylindrical, little tapering towards apex, flange large, constricted

below flange.·····*taiwana* Takahashi, 1933
Synonym: *Akkaia kagoshima* Suenaga, 1934, Hosts: *Polygonum* spp., Distribution: Taiwan, Szechuan; Japan

a′.Processus terminalis as long as base. Siphunculi yellowish brown, expanded at base, much narrowed towards apex.·····*polygoni* Takahashi, 1919
Synonyms:*Phorodon enkianthae* Shinji, 1923; *Cavariella enkianthae* Shinji, 1924
Host: *Polygonum* sp., Distribution: Szechuan; Japan.

10′.Antennae usually 6 segmented, processus terminalis at least twice as long as the base. On *Humulus*. *Prunus*, *Rubus* and *Ulmus*·····*Phorodon* Passerini, 1860
There are 3 species known from China. They may be separated as follow:

a. Body intugment granular. Siphunculi cylindrical. Cauda having a narrow apical portion and provided with 4 hairs·····*omeishanensis* (Tseng et Tao 1938)
Synonym: *Paraphorodon omeishanensis* Tseng et Tao. 1938. Host: *Rubus* sp.
Distribution: Szechuan (Omeishan). ·····

a′.Body intugment mosaic form. Siphunculi cylindrical or swollen. Cauda elongate, tapering, with 3 hairs at each side. ····· b

b.Siphunculi cylindrical, nearly same thickness thoroughout.·····
····· *humuli* (Schrank) 1801.
Synonyms: *Aphis humuli* Schrank, 1801; *Phorodon asacola* Matsumura, 1917; *Phorodon cannabis* Das, 1918; *Phorodon humuli* Takahashi, 1921. Host: *Humulus japonica*. Distribution: Taiwan, Szechuan, Shansi; Japan, Korea, India; Europe; North America.

b′.Siphunculi swollen near middle and curved at outside, much narrowed towards apex. ·····*humulifoliae* Tseng et Tao, 1938
Host: *Humulus japonica*, *Ulmus* sp. Distribution: Chekiang, Szechuan.

11. Frontal tubercles protruded forward, diverging, inward nearly parallel, somewhat converging on mesal side. Tubercles, frons and whole surface or part of head coarse, imbricated, spinulose. Siphunculi cylindrical, swollen, imbricated, smooth or reticulated below flange, flange present or absent, sometimes with hairs. ·····12

11′.Frontal tubercles protruded forward, diverging. Frontal tubercles, frons and dorsum of head smooth. Siphunculi cylindrical, swollen, smooth, imbricated, reticulated below flange towards as far as beyond middle length.·····29

12. Frontal tubercles protruded forward, granular.·····*Ovatus* van der Goot, 1913
Only one species known from China, i. e. *menthae* (Buckton), 1875.
Synonyms: *Siphonophora menthae* Buckton, 1876; *Phorodon mentharius* van der Goot, 1912; *Myzus menthae* Takahashi, 1923; *Phorodon menthae* Hori, 1929; *Ovatus menthastri* H. R. Lambers, 1947. Host: *Mentha arvensis* var. *vulgaris*.
Distribution: Taiwan; Japan, India, Middle Asia; Europe; America.

12′.Frontal tubercles spinulose.·····13

13. 3rd Antennal segment of aptera without secondary rhinaria. ..... 14
13′. 3rd Antennal segment of aptera with secondary rhinaria. ..... 23
14. Siphunculi tapering, broaded at base, gradually narrowed towards apex, without flange. Body intugment mosaic form. On *Polygonum*. ..... *Metaphorodon* Takahashi, 1961

Only one species known from China, i. e. *polygoni* (van der Goot, 1918.) Synonyms; *Phorodon polygoni* van der Goot, 1918; *Trichosiphonaphis polygoni* Takahashi, 1930. Host: *Polygonum perfoliatum*. Distribution: Kwangtung, Fuckien, Chekiang; Java.

14′. Siphunculi with flange, cylindrical. ..... 15
15. Siphunculi with hairs. ..... 16
15′. Siphunculi without hairs. ..... 17
16. Head with a median frontal tubercle, frontal tubercles nearly parallel on mesal side. Body intugment mosaic form and spinulose, Siphunculi spinules in imbrication with some moderate long hairs which as long as or little longer than the diameter of siphunculi, constricated below the flange, Hind wing without cubitus. On *Polygonum*..... *Trichosiphonaphis* Takahashi, 1921

Only one species known from China, i. e. *polygoniformosanus* (Takahashi, 1921). Synonyms: *Myzus polygoniformosanus* Takahashi, 1921; *Siphonocoryne polygoni* Shinji nec van der Goot, 1922; *Macrosiphum lonicerae* Uye, 1923. Hosts: *Lonicera confusa*, *L. japonica*, *Polygonum perfoliatum*. *P.* sp., Distribution: Kwangtung, Taiwan. Fuckien, Honan; Japan.

16′. Head without a median frontal tubercle but little protruded. Frontal tubercles slightly diverging. Siphunculi spinules in imbrication, with some short hairs, Both media and cubitus of hind wings present..... *Trichosiphoniella* Shinji, 1929

Only one species known from China, i. e. *momonis* (Matsumura, 1917), Synonyms: *Myzus momonis* Matsumura, 1917; *Aphis spinosula* Essig et Kuwana, 1918; *Myzus sasakii* Takahashi nec Matsumura, 1924; *Myzus higansakurae* Monzen, 1927; *Myzus rarus* Monzen, 1927; *Phorodon momonis* Shinji, 1949. Hosts: *Prunus cerasus*, *P. mume*, *P. persica*, *P. pseudocerasus*. Distribution: Taiwan, Fuckien, Chekiang, Kiangsu, Shantung, Szechuan, Shansi, Liaoning; Japan.

17. Secondary rhinaria present on 3rd, 4th, 5th antennal segment of alate form which scattered over the whole length. ..... 18
17′. Secondary rhinaria of alate form present on 3rd rarely 4th antennal segment and arranged in a single row rarely irregular extending to its whole length. ..... 21
18. Wing veins strongly bordered with black. Siphunculi swollen. ..... *Neotoxoptera* Theobald, 1915

There are 2 species known from China. They may be separated as follow:

a. On Violets. Secondary rhinaria of 3rd antennal segment 17-25; of 4th 0-5.

..... *violae* (Pergande, 1900)

Synonyms: *Rhopalosiphum violae* Pergande, 1900; *Fullawayella violae* Takahashi, 1921; *Idiopterus violae* Hardy, 1941. Host: *Viola* sp.. Distribution: Taiwan; North America; Bermuda; New Zealand; South and East Africa.

a′. On *Allium*. Secondary rhinaria of 3rd antennal segment 40–45, of 4th 13–19, of 5th 0–1..... *formosana* (Takahashi, 1921)

Synonyms: *Fullawayella formosana* Takahashi, 1921; *Micromyzus formosanus* Takahashi, 1929; *Micromyzus alliumcena* Essig, 1935. Hosts: *Allium fistulosum*, *A. odorum*, *A, scorodoporasum* var. *viviparum*. Distribution: Taiwan, Szechuan, Sikong; Japan; North America.

18′. Wing veins clear, siphunculi cylindrical.....19

19. Body reticulated on the dorsum of meso-and meta thorax and anterior 6 abdominal segments, with many long setae arising from low conical sclerotized tubercles on thorax and abdomen. Siphunculi distinctly reticulated on the distal part. On ferns.....*Macromyzus* Takahashi, 1960

There are 2 species known from China. they may be separated as follow:

a. Body with one or two branched setae arising from each tubercle. ..... *woodwardiae* (Takahashi, 1921)

Synonyms: *Myzus woodwardiae* Takahashi, 1921; *Myzus whinoi* Moritsu, 1951. Hosts: *Woodwardia* sp., *Polystichum* sp.. Distribution: Taiwan, Szechuan; Japan.

a′. Body without such setae arising from each tubercle. ..... *polypodicola*(Takahashi, 1921)

Synonyms: *Myzus polypodicola* Takahashi, 1921. *Macrosiphum polypodicola* Takahashi, 1925. Hosts: *Dryopteris arida*, *Polystichum* sp.. Distribution: Taiwan, Szechuan; Sumatra.

19′. Body smooth, without long setae. Siphunculi imbricated.....20

20. Head spinulose, frontal tubercles nearly parallel on mesal side, frons little protruded. Siphunculi imbricated. On *Prunus* and *Malus*..... *Prunomyzus* H. R. Lambers. 1946

There are 2 species known from China. They may be separated as follow:

a. On *Prunus* and *Malus*. Cauda abruptly triangular, with 3 hairs on each side. Galls: Curling leaves are closely similar in appearance to that *mushaensis*, Coloration of the curling leaves turns brownish yellow according to age. All of the terminal leaves of the old trees are often infested and seriously injurious to the cherry trees and is particularly harmful to the young trees..... *sakurae* (Matsumura, 1917)

Synonyms: *Myzus sakurae* Matsumura, 1917; *M. malisuctus* Matsumura, 1918; *Aphis japonica* Essig et Kuwana, 1918; *Myzus* sp. Takahashi, 1925; *Myzus takahashii* Strand, 1929. Hosts: *Prunus persica*, *P. mume*, *Malus formosana*.

Distribution: Taiwan, Kiangsu, Szechuan, Sikong. Hopei, Shansi, Liaoning; Japan, Korea.

a′. On *Prunus* only. Cauda elongate, with 2 hairs on each side, Galls: Curl in full length of young leaves of the lower parts of tree. Coloration is greenish yellow, somewhat with reddish.……*mushaensis* (Takahashi, 1925)
Synonyms: *Myzus sakurae* Takahashi nec Matsumura, 1925; *Myzus mushaensis* Takahashi, 1931. Host: *Prunus taiwana*, Distribution: Taiwan.

20′. Head minute spinulose, Frontal tubercles diverging. Median frons protruded. Siphunculi faintly imbricated. Cauda pentagonal. …… *Dysaphis*
Only one species known from China, i. e. *plantagifoliae* (Shinji, 1924.)
Synonym: *Myzus plantagicola* Takahashi, 1931, *Myzus plantagineus* Takahashi nec Passerini, 1924; Host: *Plantago major*. Distribution: Taiwan.
This species may be the summer form of the apple aphis, therefore identical with *Sappaphis plantaginea* H. R. Lambers, 1947 and it belongs to Aphinae, not to Macrosiphinae.

21. Wing veins strongly bordered with black. Siphunculi swollen. On ferns.…… …… *Micromyzus* van der Goot, 1917
Only one species known from China, i. e. *katoi* (Takahashi, 1925).
Synonyms: *Amphorophora katoi* Takahashi, 1925; *Fullawayella katoi* Takahashi, 1931. Host: *Polypodium elliptica*. Distribution: Taiwan.

21′. Veins clear, not borderd with black. Siphunculi cylindrical.……22

22. Frontal tubercles diverging on mesal side, Secondary rhinaria of 3rd antenntal segment present and not arranged in a single row, occasionally with some on 4th. Wings infuscated along the veins.……*Kaochiaoja* n. g.

*Kaochiaoja* n. g. (fig. 1.)

Antennal tubercles well developed, their inner side parallel, little diverging anteriorly, spinose. Aptera without rhinaria on base of 3rd antennal segment and alate with rhinaria on 3rd and 4th antennal segment. Wing venation normal, infuscated along the veins. Dorsum of aptera usually with black mark extending over pro- meso- and metathorax and most of abdominal segments fused to form a united black patch. Dorsum of 4, 5, 6th abdominal segment of alate to form a black quadrate patch. Siphunculi cylindrical, about 1 and half length of the cauda, faintly imbricated, with few reticulation at apex, flange large. Cauda elongate, little constricted at middle, with some hairs on each side below the constriction. Anal plate broadly rounded.

Genotype: *Myzus arthraxonis* Takahashi, 1921.

This new genus comes to near *Neomyzus* van der Goot, 1915, but is could be separated by antennal tubercles not so well developed and slightly diverging anteriorly, aptera without rhinaria on base of 3rd antennal segment and dorsum

of alate with a fused black quadrate patch.

The new genus name is in honor of Dr. and Prof. Ryoichi Takahashi for whom contributes a great deal of Oriental aphid fauna.

Only one species known from China. i. e. *arthraxona* (Takahashi, 1921). Host: *Arthraxon ciliaris*. Distribution: Taiwan.

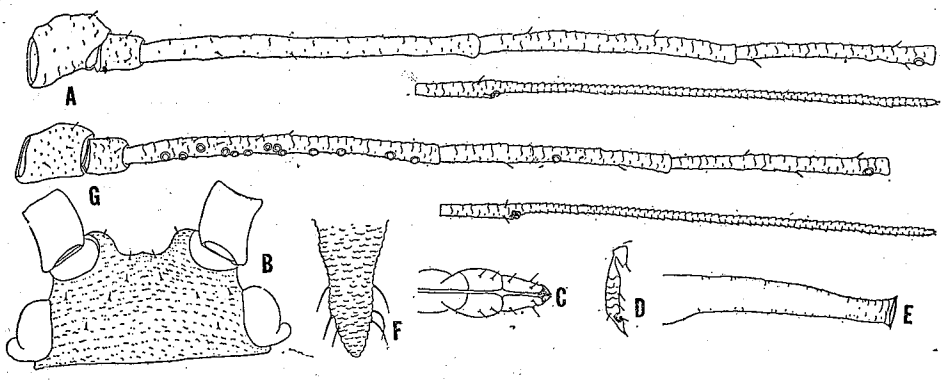


Fig. 1. *Kaochiaoja* (n. g.) *arthraxona* (Takahashi, 1921)
A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus and F cauda of apterous viviparous female; G antenna of alate viviparous female.

22′. Fontal tubercles converging or nearly parallel on the mesal side. Secondary rhinaria of 3rd antennal segment arranged in a single row or over the whole length. sometimes with some on 4th. ····· *Myzus* Passerini, 1874
There are 10 species known from China. They may be separated as follow:
a. Body black. On *Polygonum*. Alate form not yet known. ····· b
a′. Body green, pink, brown. On various plants. ····· c
b. Body intugment mosaic form. Siphunculi broaded at base, grandually narrowed towards apex. ····· *niitakaensis* Takahashi, 1937
Host: *Polygonum* sp.. Distribution: Taiwan.
b′. Body intugment minutely spinulose. Siphunculi cylindrical, little narrowed at base. ····· *formosanus* Takahashi, 1923
Host: *Polygonum chinensis*. Distribution: Taiwan.
c. Siphunculi swollen, smooth. ····· *stellariae* Strand, 1929
Synonyms: *Amphorophora* sp., 1925, *Amphorophora stellariae* Strand, 1929.
Host; *Stellaria aquatica*. Distribution: Taiwan.
c′. Siphunculi cylindrical, imbricated. ····· d
d. Secondary rhinaria scattered over the whole length of 3rd antennal segment, sometimes on 4th. ····· i
d′. Secondary rhinaria arranged in a single row and never on 4th. ····· e
e. Processus terminalis little shorter than the base. ····· ·····

..... ..... *hemerocallidis* Takahashi, 1921

Hosts: *Hemerocallis fulva*, *H. aurantiaca*. Distribution: Taiwan, Fuckien.

e'. Processus terminalis longer than the base. ..... f

f. Siphunculi shorter than 3rd antennal segment. ..... ..... *boehmeriae* Takahashi, 1923

Host: *Boehmeria* sp.. Distribution: Taiwan.

f'. Siphunculi longer than 3rd antennal segment. ..... g

g. Apex of siphunculus black. ..... *varians* Davidson, 1912

Synonym: *Myzus tropicalis* Takahashi, 1923. Host: *Prunus persica*. Distribution: Taiwan, Chekiang, Szechuan, Sikong; Ryukyu, Japan; North America.

g'. Apex of siphunculus not black. ..... h

h. Cauda longer than the width across the frontal tubercles and with 3 hairs on each side. ..... *persicae* (Sulzer, 1776)

Synonyms: *Aphis persicae* Sulzer, 1776; *Myzus persicae* Shiraki, 1913; *Myzoides persicae* van der Goot 1913; *Rhopalosiphum persicae* Matsumura, 1917. Hosts: Many species of Aceraceae, Apocynaceae, Borraginaceae, Caryophyllaceae, Chenopodiaceae, Compositae, Convolvulaceae, Cruciferae, Leguminose, Malvaceae, Myrtaceae, Papaveraceae, Pedaliaceae, Polygonaceae, Rosaceae, Rutaceae, Scrophulariaceae, Solanaceae, Ulmaceae, Verbenaceae. Distribution: Hainan, Kwangtung, Taiwan, Fuckien, Chekiang, Kiangsu, Shantung, Hopei. Liaoning, Szechuan and Sikong. This is a cosmopolitan species and well known insect vector of plant viruses.

h'. Cauda shorter than the width across the frontal tubercles. ..... ..... *siegesbeckicola* Strand, 1929.

Synonym: *Myzus* sp. 1925; *Myzus siegesbeckicola* Strand, 1929. Host: *Siegesbeckia orientalis*. Distribution: Taiwan; Sumatra.

i. Secondary rhinaria of 3rd antennal segment present and not occupied over its whole circumference. Siphunculi swollen. ..... *urticae* n. sp.

*Myzus urticae* n. sp. (fig. 2.)

Aptera: When alive dark green to greenish brown. Specimens treated with austic potash and mounted in balsam. Head, antennal segment I, II, apical halves of III to VI, ultimate rostral segment, distal halves of femora, apices of tibiae, tarsi including claws, apies of siphunculi brown to blackish brown, basal halves of antennal segment III, coxae, trochanters, basal halves of femora, large parts of tibiae and siphunculi, cauda and anal plate pale brown; rest pale.

Dorsum of head minutely spinulose, Frontal tubercles slightly converging on mesal side, minutely granular, with 4 short setae on the apex. Frons straight, with 2 setae which little curved and longer than those on the frontal tubercles, Eyes large, with distinct but not so protruded ocular tubercles. Antennae 6 seg-

mented, I, II scaly, III little curved near basal one third, III to VI imbricated, without secondary rhinaria, antennal setae as stout as those on the frontal tubercles, The relative length of antennal segments as follow: I - 0.0920, II - 0.0690, III - 0.3680, IV - 0.2300, V - 0.1794, VI - 0.1020+0.3312 mm.. Rostrum long, extending between hind coxae, the length of ultimate segment about 3 times of its broadth. Legs normal, coxae spinulose, trochanters and femora smooth, tibiae little stouter than antennal segment III, with many moderate strong setae, first tarsal chaetotaxy 3 : 3 : 3. Intugment of thorax and abdomen mosaic form on the upperside and smooth on the underside. Abdominal sternites I to V with 5 rows of hairs. Abdominal spiracular tubercles prominent. Siphunculi with the exception of smooth part near apex, scaly imbricated, swollen near apical two thirds, narrowed near basal and apical portion, little curved at innerside, flange large, with 2-3 striae below the flange, Cauda elongate, minutely spinulose, with 2 - 3 hairs on each side below the distal half. Anal plate broadly rounded with about 10 hairs on the outer side.

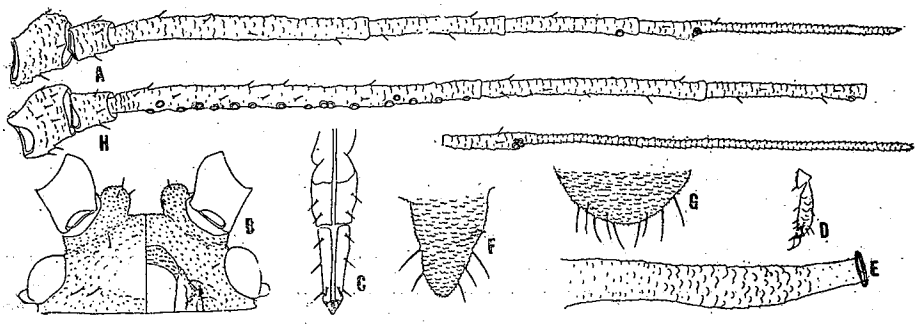


Fig. 2. *Myzus urticae* n. sp.

A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus, F cauda and G anal plate of apterous viviparous female; H antenna of alate viviparous female.

Body length 1.7696, width 1.0270, antenna length 1.3708, fore tibia length 0.6700, hind tibia length 0.9982, siphunculus length 0.5520, width 0.0506-0.0782, cauda length 0.1520, width at base 0.0912 mm.

Alate: Head, antennae, thorax blackish brown, bases of antennal segments III with exception of their apices which are pale, tarsi including claws, siphunculi, cauda and anal plate blackish brown; wing veins, abdominal sclerites blackish brown; rest pale.

Dorsum of head striated, frontal tubercles little spinulose, frons protruded, antennal segment I and II scaly, III imbricated at base, with about 20 subcircular rhinaria which irregularly arranged over the whole length, IV, V, VI imbricated, IV and V without secondary rhinaria. The relative length of antennal segments as

follow: I - 0.0920, II -0.0736, III - 0.5842, IV - 0.3682, V - 0.2668, VI-0.1380+0.5106 mm.. Setae on head and antennae same as those in aptera, Eyes large, ocular tubercles prominent but not so protruded, lateral ocellus near inner margin of the eye, median ocellus on the frons, Wing menbrane transparent, smooth; venation normal; stigma narrow, radius curved, media and cubitus of hind wings nearly parallel, hooklets 3. Abdomen smooth, with a central quadrangular sclerite which composed of 2nd, 3rd, 4th and 5th abdominal transversal sclerite together, 2nd, 3rd and 4th lateral sclerite large, with some grouped spinules, post siphuncular sclerites and 7th abdominal sclerite spinulose, There are 3 groups of wax pores on 3rd, 4th and 5th abdominal segment and another 2 groups besides the Ist and 2nd wax groups. Siphunculi comparatively smooth, form similar to aptera. Cauda abruptly conical, pointed at apex, spinules in striae, with 3 long hairs at each side. Anal plate same as in aptera, comparatively fine.

Length of body 2.2120, width 0.9480, antenna length 2.0334, fore tibia length 0.2990, hind tibia length 0.3772, fore wing length 0.9200, width 0.3496, siphunculus length 0.4370, width 0.0414 - 0.0552, cauda length 0.1520, width 0.1216 mm..

Host: *Urtica dioca*

Locality: Some apterous and alate viviparous females were taken by the writer on Nov, 28, 29, Dec. 13, 1936 at Chengtu, and Jan. 3, 1939 at Sitsung, Szechuan and on Jan. 8, 1946 at Sichang, Sikong.

i'.Secondary rhinaria of 3rd and 4th antennal segmet present and occupied the whole circumference. Siphunculi cylindrical. ..... *tsengi* n. sp.

*Myzug tsengi* n. sp. (fig. 3.)

Aptera: When alive body pale green, but specimens treated with caustic potash and mounted in balsam, antennal segment V, VI, ultimate rostral segment, apices of tibiae, tarsi including claws, apices of siphunculi brown; rest pale.

Head smooth on the central portion, minutely granular on the margin along the compound eyes, frons and frontal tubercles. Frontal tubercles very developed, converging, frons straight. Antennae 6 segmented, I and II scabrous and I gibbous on the innerside, III-VI imbricated, without secondary rhinaria. The relative length of antennal segments as follow: I-0.0828, II-0.0644, III 0.3356, IV-0.1978, V-0.1426, VI-0.1058+0.2162 mm.. Eyes large with distinct portruded ocular tubercles. Rostrum short, extending beyond first coxae, ultimate segment long and narrower than penultimate segment, smooth. Body intugment mosaic form on the dorsal side, smooth on the ventral side. Legs normal, coxae, trochanters, tibiae smooth, femora with few imbrications, tarsi imbricated; first tarsal chaetotaxy 3 : 3 : 3. Siphunculi cylindrical, broaded at bases and narrowed to apices, minute spinules in imbrication, flange large, with 2 or 3 striae below it. Cauda elongate, with 2 long curved hairs on each side below distal half. Anal plate broadly rounded, with about 8 hairs on the outer margin.

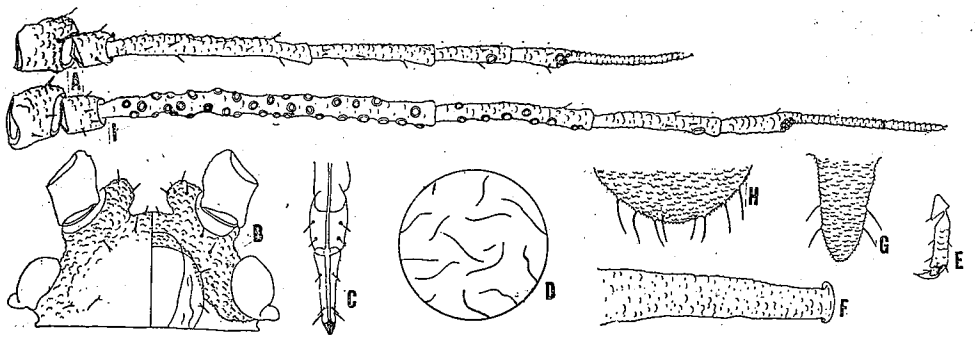


Fig. 3. *Myzus tsengi* n. sp.
A antenna. B head, C rostrum, D part of body intugment, E hind tarsus including claw, F siphunculus, G cauda and H anal plate of apterous viviparous female; I antenna of alate viviparous female.

Body length 1.8960, width 0.9776, antenna length 1.1454, fore tibia length 0.5846, hind tibia length 0.7900, siphunculus length 0.3910, width 0.0460 - 0.0920, cauda length 0.1520, width 0.0912 mm..

Alate: Head, antennae, rostrum, thorax, legs with exception of bases of femora and middle parts of tibiae which are paler, wing veins, siphunculi, cauda, anal plate, abdominal sclerites blackish brown; rest pale.

Head with some minute spinules on the frons and frontal tubercles. Frontal tubercles developed, converging on the mesal side. Median frontal tubercle protruded, which located with median ocellus. Lateral ocellus near the inner front margin of compound eye. Compound eyes with small protruded ocular tubercles. Rostrum short, extending beyond first coxae. Antennae 6 segmented. I, II scaly; I gibbous and much broader than II, III-VI imbricated, III and IV with about 30, 10 circular rhinaria which irregularly scattered over the whole length, V without secondary rhinaria. The relative length of antennal segments as follow: I-0.0750, II-0.0552, III-0.4370, IV-0.2346, V-0.1748, VI-0.1012 +2262 mm.. Legs normal, Wing venation normal, wing membrane punctured at outer margin. Abdominal segment II, III, VI and VII with transversal sclerite, IV and V sclerites fused to form a central quadrical patch, post siphuncular sclerites present, but small, 2nd, 3rd, 4th abdominal lateral sclerite and 7th abdominal transversal sclerite with some spinules, spiracular tubercles small. Siphunculus, cauda and anal plate same as the aptera.

Body length 1.7696, width 0.8690, antenna length 1.3040; fore tibia length 0.6794, hind tibia length 0,8216, fore wing length 0.8970, width 0.3542, siphunculus length 0.2714, width 0.0368-0.0736, cauda length 0.1064, width at base 0.0912 mm..

Host: *Artemisia* sp. (Compositae)

Locality: some apterous and alate viviparous females were taken by the writer on March 29. 1937 at Chengtu, Szechuan.

The species name is in honor of Dr. Shen Tseng for whom contributed a great deal of Chinese aphid fauna himself and in promotion the writer's study, when he was the Dean of College of Agricuture of National Unversity of Shantung and Szechuan.

23. 3rd Antennal segment of aptera with few rhinaria near its base. ·····24
23′. 3rd Antennal segment of aptera with many rhinaria and arranged nearly or not in a row. ····· 28
24. Body intugment pigmented. ····· 25
24′. Body intugment without pigmentation. ····· 27
25. Siphunculi swollen. ·····*Aulacophora* n. g.

*Aulacophora* n. g. (fig. 4.)

Antennal tubercles very developed, slightly convex on mesal side. 3rd antennal segment of aptera with some rather small circular rhinaria near the base and many small or moderate circular ones in the alate form. Siphunculi swollen, specially on one side, with some imbrications below the flange. Siphuncular and lateral sclerites present. Cauda ensiform, with some hairs below the narrowed part. Wing venation normal, somewhat clouded along 1st and 2nd oblique and slightly so along the basal part of the stigma veins.

Genotype: *Amphorophora formosana* Takahashi, 1923.

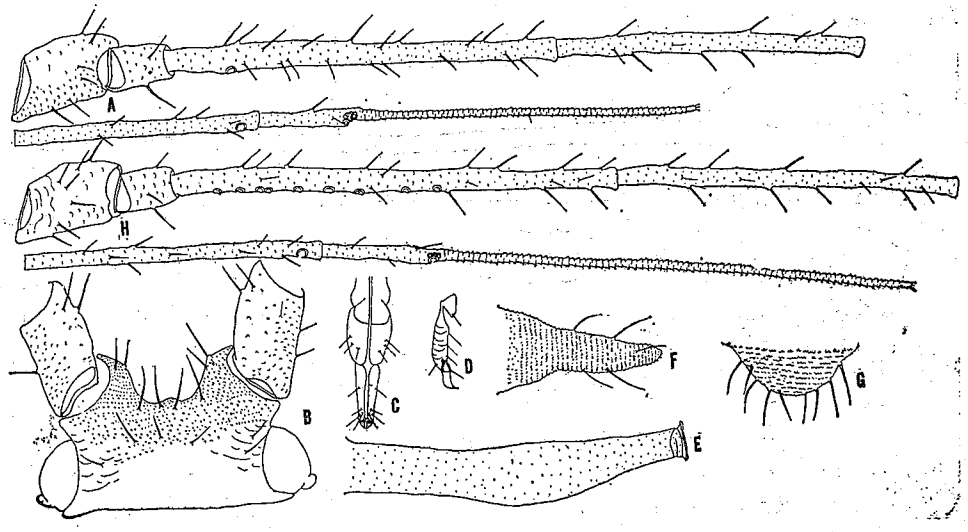


Fig. 4. *Aulacophora* (n. g.) *formosana* (Takahashi, 1923)
A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus, F cauda and G anal plate of apterous viviparous female; H antenna of alate viviparous female.

Median ocellus on the inner margin of frons and lateral ocellus beside the front portion of compound eye. Antennae 6 segmented, I and II spinulose, there is a group of wax plate near the base on the underside of I, III to the following segments imbricated, II thinner than I, III with 6–8 indistinct small circular rhinaria arranged in a single row near the basal half on the outer margin. The relative length of antennal segments as follow I–0.1242, II–0.1104, III–0.5888, IV–0.3864, V–0.2944, VI–0.1104+0.6256 mm.. Rostrum long, extending between middle coxae, penultimate segment broad, ultimate segment narrow and nearly as long as the penultimate segment. Legs stout, distal halves of femora with wax plates, first tarsal chaetotaxy 3 : 3 : 3. Wings punctured along the outer margin, on the both sides of cubitus and anal vein of forewing blackish brown, Abdomen smooth, without dorsal transversal sclerites, hairs on abdomen stout, arranged into transversal rows, some hairs raised from sclerites. Siphunculi cylindrical, spinules in imbrication, flange large, Cauda elongate. Anal plate rounded.

Body length 3.0400, width 1.5200, antenna length 2.2402, fore tibia length 1.7480, hind tibia length 2.2260, fore wing length 3.7240, width 1.2160, siphuculus length 0.7360, cauda length 0.2622, width 0.1520 mm..

The description was based on the materials collected from Chengtu, Szechuan by Mr C. T. Laan on May 4, 1939.

27′. Secondary rhinaria extending to the whole length of 3rd antennal segment of alate. ..... *Aulacorthum* Mordvilko, 1914*

There are 5 species known from China, they may be separated as follow:

a. Siphunculi pale and just black at the apices. ..... *takahashii* (Mason, 1925)
Synonyms: *Amphorophora* sp. Takahashi, 1923; *Amphorophora takahashii* Mason, 1925; *Acyrthosiphon takahashii* Takahashi, 1931. Host: *Pollia japonica*. Distribution: Taiwan.

a′. Siphunculi black thoroughly. ..... b

b. Body intugment mosaic form. Siphunculi scaly imbricated below the flange to the middle length. ..... *circicolum* (Takahashi, 1923)
Synonyms: *Macrosiphum circicola* Takahashi, 1923, *Macrosiphum* sp. Takahashi, 1925; *Macrosiphum tricholobicola* Strand, 1929; *Acyrthosiphon circicola* Takahashi, 1931. Hosts: *Arctium lappa*, *Cirsium japonicum*, *Petasites tricholobus*. Distribution: Taiwan; Japan.

b′. Body intugment smooth. Siphunculi imbricated thoroughly. ..... c

c. Body hairs of aptera stout, longer than the circumference of 3rd antennal segment. Secondary rhinaria large, prominent, more than 2. Cauda paler than the siphunculi. ..... *perillae* (Takahashi, 1924.)

*Myzus yangi* Takahashi, 1938, judging its description may belong to this genus but the writer did not find the specimens so that I can not judge which genus it belonged.

Synonyms: *Macrosiphum perillae* Takahashi, 1924; *Acyrthosiphon perillae* Takahashi 1931. Host: *Perilla ocymides*. Distribution: Taiwan, Szechuan; Japan.

c′. Body hairs fine, much shorter than the circumference of 3rd antennal segment. Cauda same color as the siphunculi. Secondary rhinaria small, less than 2, not prominent. ····· d

d. Body red. ·····*paederiae* (Takahashi, 1921.)

Synonyms: *Macrosiphum paederiae* Takahashi, 1921; *Macrosiphum esakii* Takahashi, 1924; *Amphorophora paederiae* Takahashi, 1929; *Acyrthosiphon paederiae* Takahashi, 1931; *Illinoia paederiae* Wu, 1935. Host: *Paederia tomentosa*. Distribution: Taiwan, Fuckien, Szechuan; Ryukyu, Japan.

d′. Body yellowish green. ····· *solani* (Kaltenbach) , 1843

Synonyms: *Aphis solani* Kaltenbach, 1843; *Aulacorthum vincae* Walker, 1845; *Myzus pseudosolani* Theobald, 1922; *Macrosiphum matsumuraeanum* Hori, 1926; *Acyrthosiphon kondoi* Shinji, 1928; *Acyrthosiphon pisi* Takahashi (Pt.) , 1931; *Acyrthosiphon kuwanai* Takahashi, 1933; *Aulacorthum kuwanai* Takahashi, 1939; *Aulacorthum matsumuraeanum* Moritsu 1948. Hosts: *Glycine hispida*, *Myrica rubra*, *Solanum tuberosum*, *Celtis formosana*, *Vitis* sp.. Distribution: Taiwan, Liaoning; Japan; Cosmopolite.

28. Median frontal tubercle protruded. Secondary rhinaria of 3rd antennal segment arranged in a single row and confined to basal two thirds, 4th without rhinaria. Alate with rhinaria on both 3rd and 4th which arranged in a single row. ····· ····· *Rhodobium* H. R. Lambers, 1937

Only one species known from China, i. e. *porosum* (Sanderson, 1901) .

Synonyms: *Myzus porosus* Sanderson, 1901; *Macrosiphum rosaefoliae* Theobald, 1915; *Aulacorthum viride* van der Goot, 1917; *Aulacorthum pseudorosaefolium* Blanchard, 1922; *Acyrthosiphon rosaefoliae* Takahashi, 1931; *Macrosiphum zoorosarum* Knowlton and Smith, 1936. Hosts: *Rosa chinensis*, *R.* sp.. Distibution: Taiwan, Hopei; India, Java; Africa; Argentine; North America; Holland.

28′. Head without median frontal tubercle. 3rd and 4th antennal segment of aptera and 3rd, 4th and 5th of alate with secondary rhinaria not arranged in a single row. Siphunculi dilated at distal one fourth. ····· *Taiwanomyzus* n. g.

*Taiwanomyzus* n. g. (fig. 7.)

Head spinules on both side. Antennal tubercles very developed, nearly parallel inside, frontal sinus straight. Aptera with secondary rhinaria scattered over the whole length of 3rd antennal segment and sometimes on 4th, alate with secondary rhinaria on 3rd, 4th and 5th antennal segment, processus terminalis longer than 3rd segment. Body sclerotized on the dorsum of pro- meso- and metathorax and abdominal segments. Siphunculi swollen below distal half, minutely spinulose, imbricated, flange large, with some

imbrication and imcomplete reticulation below it. Cauda elongate, with some hairs below the constriction. Anal plate broadly rounded. Wing venation normal. Abdomen with 4 incomplete transversal sclerites befere siphunculi. Post siphuncular sclerites present. Spiracular sclerites prominently protruded.

Genotype: *Myzus montanus* Takahashi, 1925.

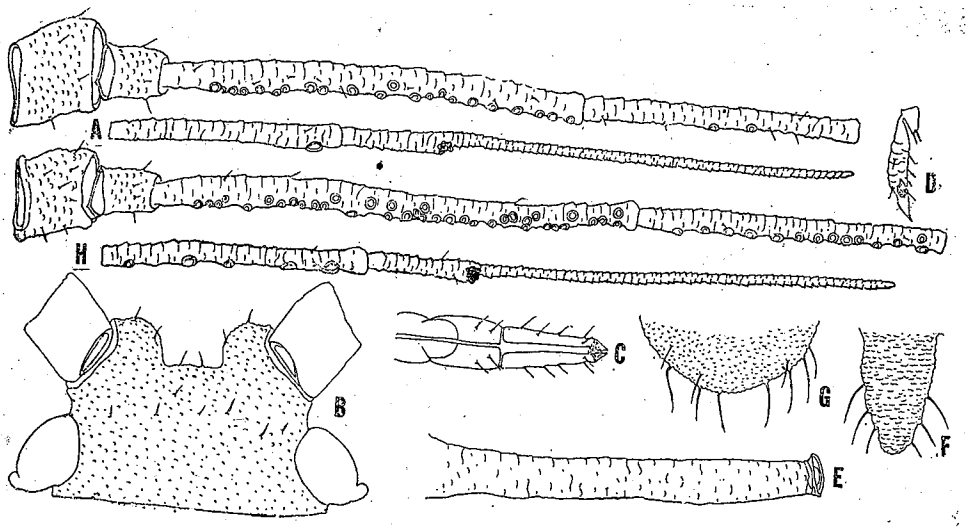


Fig. 7. *Taiwanomyzus* (n. g.) *montanus* (Takahashi, 1925)
A antenna, B head, C rostrum, D hind tarsus incuding claw, E siphunculus, F cauda and G anal plate of apterous viviparous female; H antenna of alate viviparous femle.

This new genus comes to near *Rhodobium* H. R. Lambers, 1937, but it could be separated in the revisional key.

Only one species known from China, i. e. *montanus* (Takahashi, 1925) . Host: *Astibe longicarpa*. Distribution: Taiwan.

29. Siphunculi swollen. ..... 30
29′. Siphunculi cylindrical. ..... 39
30. Siphunculi without reticulation. ..... 31
30′. Siphunculi with reticulation. ..... 38
31. 3rd Antennal segment of aptera without secondary rhinaria. ..... 32
31′. 3rd Antennal segment of aptera with secondary rhinaria. .....34
32. Frontal tubercles diverging and with a median frontal tubercle, 4th antennal segment of alate with secondary rhinaria.....*Wahlgreniella* H. R. Lambers, 1949
Only one species known from China, i. e. *viburni* (Takahashi, 1925)
Synonym: *Amphorophora viburni* Takahashi, 1925. Hosts: *Mahonia morrissonensis*, *Viburnum arboricolum*. Distribution: Taiwan.

32'. Frontal tubercles nearly parallel on the mesal side, 4th antennal segment of alate without secondary rhinaria. ..... 33

33. Siphunculi gradually swollen but not abruptly to the normal size near both ends. ..... *Neorhopalomyzus* n. g.

*Neorhopalomyzus* n. g. (fig. 8.)

Antennal tubercles well developed, moderately projecting inwards. 3rd antennal segment of aptera without rhinaria but present in alate form. Siphunculi swollen near middle, with some imbrications below the flange, much longer than cauda. Cauda tapering, Anal plate broadly rounded. Wing venation normal. Abdomen of alate with dorsal transversal and siphuncular sclerites.

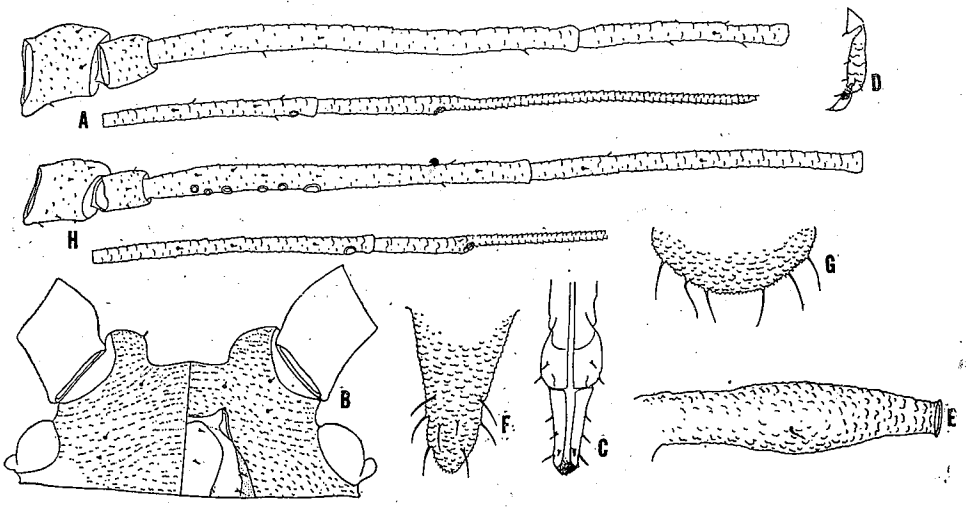


Fig. 8. *Neorhopalomyzus* (n. g.) *lonicercicolus* (Takahashi, 1921)
A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus, F cauda and G anal plate of apterous viviparous female; H antenna of alate viviparous female.

Genotype: *Amphorophora lonicercicola* Takahashi, 1921.
Only one species known from china. i. e. *lonicercicolus* (Takahashi, 1921).
Host: *Lonicera maackii*. Distribution: Kiangsu; Japan.

33'. Siphunculi narrow and cylindrical at base, then abruptly and prominently swollen, returning again abruptly to the normal size near the tip. ..... *Rhopalosiphoninus* Baker, 1920

Only one species known from China, i. e. *takahashii* new species

*Rhopalosiphoninus takahashii* n. sp. (fig. 9.)

Aptera: Color noted from specimen treated with caustic potash and mounted in balsam. Body yellowish brown, Head nearly smooth. Frontal tubercles well developed, with some minute spinules and 3 slight curved hairs which little

longer than those on the antennae, Antennae 6 segmented, I and II with minute spinules, which similar to those on the frontal tubercles, III and IV smooth, V and base of VI faintly imbricated, processus terminalis distinctly imbricated. The relative length of antennal segments as follow: I-0.1216, II-0.0912, III-0.5624, IV-0.5016, V-0.3952, VI-0.1064+0.6080 mm.. Rostrum long, extending between hind coxae. Legs normal. Body intugment nearly smooth. Siphunculi distinctly swollen from middle to near apex which larger than the cauda, smooth on swollen part and imbricated at basal narrowed part which as thick as the hind tibia. Cauda elongate, spinulose, little constricted near the seta bearing portion, 2 little curved setae on each side. Anal plate broadly rounded, spinulose.

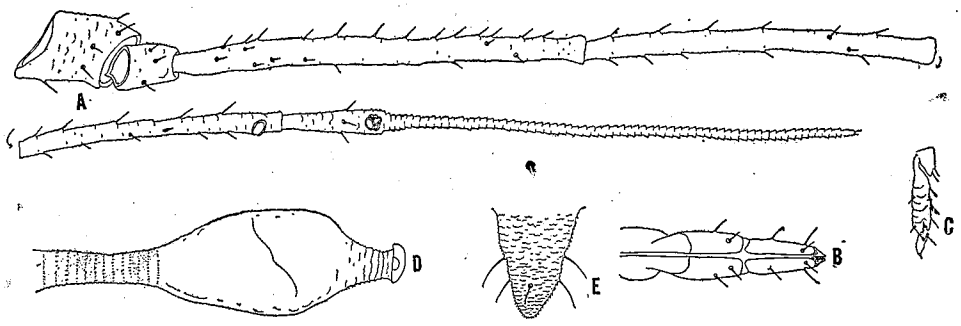


Fig. 9. *Rhopalosiphoninus takahashii* n. sp.
A antenna, B rostrum, C hind tarsus including claw, D siphunculus and E cauda of apterous viviparous female.

Body length 1.6720, width 0.9120, antenna length 2.3864, fore tibia length 1.0640, hind tibia length 1.3680, siphunculus length 0.8316, width at narrowed part 0.0456, at swollen part 0.1672, cauda length 0.1520, width 0.1064 mm..

Host: unknown.

Locality: Only one aptera was collected by Mr. S. Minowa in April. 1931 at Arisan. Taiwan.

34. Siphunculi very long, longer than the antennal segments III, IV and V taken together, without flange. ..... *Titanosiphon* Nevsky, 1928
Only one species known from China, i. e. *neartemisiae* (Takahashi, 1921)
Synonyms: *Macrosiphum neoartemisiae* Takahashi, 1921; *Titanosiphon bellicosum* Nevsky,1928; *Amphorophora neoartemisiae* Takahashi, 1931. Host; *Artemisia capillaris*. Distribution: Taiwan.

34′. Siphunculi moderately long, with flange. .....35

35. Secondary rhinaria of 3rd antennal segment of aptera more than 10, extending to the whole length. .....36

35′. Secondary rhinaria of 3rd antennal segment of aptera less than 5, near the base. .....37

36. Head with a moderate median frontal tubercle. Secondary rhinaria of aptera also present on IV and IV and V of alate.····· *Hyperomyzus* Borner, 1933
Only one species known from China. i. e. *lactucae* (Linne. 1758).
Synonyms: *Aphis lactucae* Linne, 1758; *Rhopalosiphum erraticum* Koch, 1854; *Rhopalosiphum lactucae* Walker, 1870; *Rhopalosiphum ribis* Buckton, 1879; *Rhopalosiphum sonchi* Oestlund, 1886; *Rhopalosiphum dianthi* Oestlund, 1887; *Nectarophora ribis* Oestlund, 1887; *Siphonophora lactucae* Schouteden, 1900; *Rhopalosiphum oleraceae* van der Goot. 1917; *Amphorophora carduelliona* Theobald, 1920; *Amphorophora lactucae* Quaintance, 1920; *Amphorophora oleraceae* Theobald, 1921; *Amphorophora sonchi* Oestlund. 1922; *Amphorophora sonchifoliae* Takahashi, 1923; *Amphorophora triticum* Theobald, 1923; *Amphorophora cosmopolitana* Mason, 1925; *Rhopalosiphoninus lactucae* Borner, 1932; *Nasononia* (*Hyperomyzus*) *lactucae* Eastop, 1958. Hosts: *Crepis* sp., *Lactuca debilis*, *Sonchus oleracea*. *S. arvensis*. Distribution: Taiwan, Fuckien, Szechuan; Ryukyu; Boredie Is., Sumatra; Africa; North America; Europe.

36′. Head without a median frontal tubercle, concave. Secondary rhinaria of antennal segment of aptera and 4th and 5th of alate absent.····· ····· *Megoura* Buckton, 1876
Only one species known from China. i. e. *viciae japonica* (Matsumura, 1918)
Synonyms; *Rhopalosiphum viciae* Kaltenbach var. *japonica* Matsumura, 1918; *Nectarosiphum moriokae* Shinji, 1923; *Amphorophora lathyri* Shinji, 1924; *Megoura japonica* Okamoto et Takahashi, 1927; *M. lathyri* Shinji, 1941; *Amphorophora vicicola* Shinji, 1941. Hosts: *Pisium sativum*, *Vicia faba*, Distribution: Kwangsi, Honan; Japan, Corea; Europe.

37. Siphunculi little swollen, as long as the cauda, smooth. ····· ····· *Sinomegoura* Takahashi, 1960
There are 3 species known from China, they may be separated as follow:

a. Head minute spinules in imbrication on the underside of head, Siphunculi distinctly darker than cauda.····· *photiniae* (Takahashi, 1936)
Synonym: *Acyrthosiphon photiniae* Takahashi, 1936. Host: *Photinia variabilis*, *Raphidolepis indica*. Distribution: Kwangtung; Japan.

a′. Head smooth on the underside of head. Siphunculi distinctly paler than cauda. ····· b

b. Last 2 rostral segment and femora of legs brown, same color as the cauda. ····· *citricola* (van der Goot, 1917)
Synonyms: *Macrosiphoniella citricola* van der Goot, 1917; *Tuberosiphum camphorae* Shinji, 1922; *Megoura jacobsoni* Mason, 1927; *Megoura citricola* Takahashi, 1929. Hosts: *Camellia japonica*, *Canarium album*, *Cinnamomum camphora*, *Lasianthus* sp., *Ficus obscura*, *Baunhinia variegata*, *Bridelia ovata*, *Citrus* spp. *Murraya exotica*. *Trachycarpus excalsus*, *Acrohychia peduneulata*. Distribution:

Taiwan, Kwangtung, Fuckien; Japan, Java.

b'. Last 2 rostral segment and femora of legs pale, same color as the cauda. ..... *rhododendri* (Takahashi, 1937)

Synonym: *Acyrthosiphon rhododendri* Takahashi, 1937. Host: *Rhododendron oldhami*. Distribution: Taiwan.

37'. Siphunculi distinctly swollen near middle, longer than cauda, minute spinules in imbricaion. Secondary rhinaina of 4th antennal segment present too. ..... *Amphorophora* Buchton, 1876

Only one species known from China, i. e. *lespedazae* (Essig et Kuwana, 1918)

Synonyms: *Rhopalosiphum lespedezae* Essig et Kuwana, 1918; *Amphorophora lespedezae* Shinij, 1927. Host: *Vitex negundo incisra*. Distribution: Taiwan, Fuckien; Corea, Japan.

38. Cauda elongate, longer than tarsi. 3rd Antennal segment of aptera with secondary rhinaria. ..... *Indomegoura* H. R. Lambers, 1960

Only one species known from China, i. e. *indica* (van der Goot, 1961).

Synonyms: *Rhopalosiphum indicum* van der Goot. 1916; *Rhopalosiphum hemerocallidis* Matsumura, 1918; *Rhopalosiphum miniatum* Matsumura, 1918; *Amphorophora indica* Takahashi, 1921; *Nectarosiphum mitsubautsugi* Shinji, 1923; *Amphorophora essigwanai* Mason, 1925. Host: *Hemerocallis aurantiaca*. Distribution: Taiwan, Szechuan, Japan. Corea, India.

38'. Cauda traingular, shorter than siphunculi. 3rd Antennal segment of aptera without secondary rhinaria. ..... *Omeimegoura* n. g.

Genotype: O. *nigrotibiae* n. sp.

*Omeimegoura nigrotibiae* n. g. et sp. (fig. 10.)

Aptera: Color when alive not yet recorded, but specimens treated with caustic potash and mounted in balsam, body yellowish brown, antennal segments III to VI, last 2 rostral segments, legs besides bases of femora, siphnuculi blackish brown. Head, antennal segments I and II, coxae, trochanters and basal parts of femora yellowish brown.

Body intugment smooth, frontal tubercles well developed, diverging, median frontal tubercle prominent, little over the frontal tubercles, both with some granules, 2 moderate long setae on the mesal side and frons and similar 3 on the dorsum between the antennal socates and 3 between the compound eyes. Compound eyes large, ocular tubercles prominent. Antennae 6 segmented, I, II, III, with few faint, imbrications, IV, V and IV imbricated, without secondary rhinaria, antennal setae as thick as those on the head. The relative length of antennal segments as follow: I-0.0912, II-0.1064, III-0.6080, IV-0.3800, V-0.3800, VI-0.1520+0.7600 mm.. Rostrum long, extending between hind coxae, broad. Legs normal, femora with some striae, setae on femora and tibiae as stout as those on the antennae, first tarsal chaetotaxy 3 : 3 : 3 . Abdomen without any sclerites, hairs very small. Siphunculi very strong and little longer than antennal segment

III, swollen at middle one third, little narrowed at basal and apical one third, flange large, below fange with 7, 8 rows of reticulations, remaining parts smooth, with some spinules in imbrication. Cauda conical, without constriction, below middle length with 6, 7 long hairs on each side and 2 or 3 on the outer margin. Anal plate broaded, both cauda and anal plate spinulose.

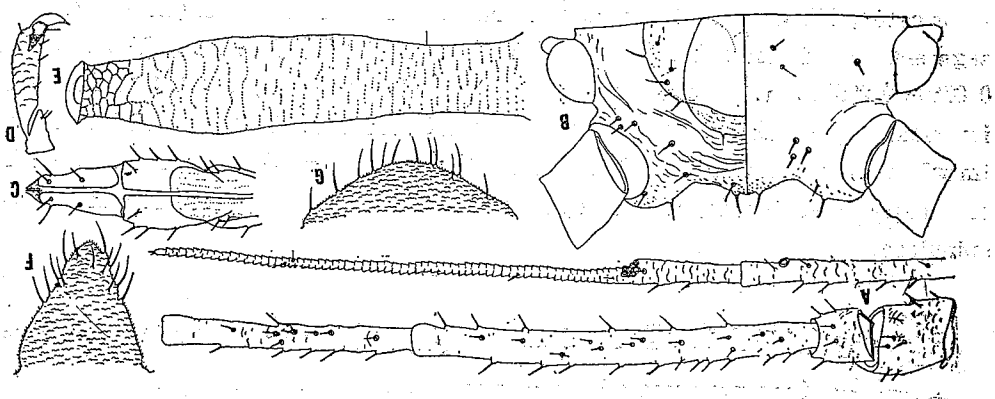

Fig. 10. *Omeimegoura nigrotibiae* n. g. et sp.
A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus, F cauda and G anal plate of apterous viviparous female.

Body length 2.5076, width 1.5200, antenna length 2.5076, fore tibia length 1.0188, hind tiba length 1.5200, siphunculus length 0.6836, width at midde 0.1520, at base 10.1216, at apex 0.0670, canda length 0.2276, width at base 0.1824, anal plate length 0.1064, width 0.4256mm..

Host: Not recorded.

Locality: Omeishan, Szechuan, many apterous viviparous females were collected by the writer on August 22, 1938.

This new genus and species very allied to *Indomegoura indica* (van ver Goot, 1916) but it can be identified by antennal segment III of apterous viviparous form without secondary rhinaria, cauda conical, little longer than wide and much shorter than siphunculi as well as the tibiae entirely black.

39. Siphunculi imbricated thoroughly. .....40
39'. Siphunouli reticulated below the flange as far as beyond middle length. ...45
40. Siphunculi as long as the cauda, without flange.....
.....*Hyalopteroides* Theobaed, 1916

Only one species known from China. i. e. *sinensis* n. sp.

*Hyalopteroides sinensis* n. sp. (fig. 11.)

Aptera: When alive body pale green, covered with white waxy powder, specimens treated with caustic potash and mounted in balsam, body clear, without any sclerites and scleroites, more or less dusky on 6th antennal segment, last 2 rostral segments and tarsi including claws.

Body intugment smooth. Head nearly smooth, with well developed frontal tubercles, median frontal tubercle prominent, little lower than frontal tubercles, each with 2 setae on the mesal side. Eyes large with distinct ocular tubercles. Rostrum short, extending before base of first coxae. Antennae 6 segmented, I II and base of III nearly smooth, distal half of III to processus terminalis imbricated, III without secondary rhinaria. The relative length of antennal segments as follow: I-0.1520, II-0.1520, III-0.3952, IV-0.2280, V-0.2128, VI-0.0760+0.2280 mm.. Legs smooth, first tarsal chaetotaxy 2 : 2 : 2, 2nd tarsi imbricated. Siphunculi cylindrical, about 3 times as long as wide, faintly imbricated, without flange. Cauda elongate, little narrowed near middle, with 2 or 3 hairs on each side, minute spinules in striations. Anal plate broaded round, spinulose.

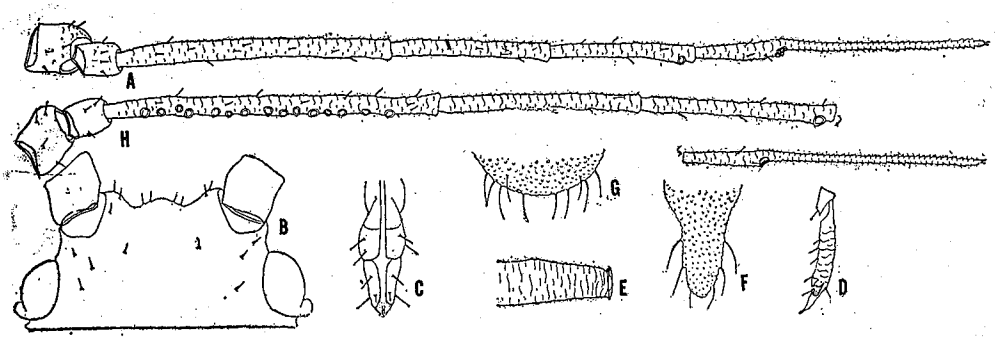


Fig. 11. *Hyalopteroides sinensis* n. sp.
A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus, F cauda and anal plate of apterous viviparous female; H antenna of alate viviparous female.

Body length 2.0976, width 0.8928, antenna length 1.2920, fore tibia length 0.6840, hind tibia length 0.9576, siphunculus length 0.1824, width 0.0760, cauda length 0.2280, width at base 0.1064, at constricted part 0.0608 mm..

Alate: Head, antennae, rostrum, thorax, legs except trochanters, bases of femora which yellowish brown, apices of tibiae, tarsi including claws, wing veins and stigma, 2nd, 3rd and 4th abdominal marginal sclerites, central patch, siphunculi blackish brown. Cauda and anal plate yellowish brown, rest pale.

Head smooth, antennal tubercles as high as the median frontal tubercle. Median ocellus on median frontal tubercle, lateral ocellus near compound eye. Atennae 6 segmented, III with 13-15 circular rhinaria which nearly arranged in a single line extending to the whole length except both ends, IV and V without secondary rhinaria. The relative length of antennal segments as follow: I-0.0670, II-0.0670, III-0.5016, IV-0.3496, V-0.2888, VI-0.1520+0.3040 mm.. Rostrum short, extending to the middle part of mesosternum. Legs normal. femora

with indistinct wax plates. Wing venation normal, punctured whole surface. Abdomen with a large central quadrangular black patch. Siphunculi, cauda and anal plate similar to the aptera.

Body length 2.0420, width 0.9120, antenna length 1.7480, fore tibia length 0.9880, hind tibia length 1.2160, fore wing length 3.2680, width 1.4288, siphunculus length 0.1216, width 0.0456, cauda length 0.1520, width 0.0912 mm..

Host: Not recorded.

Locality: Some alate and aptera viviparous females were taken on March 29, 1937 at Chengtu, Szechuan by the writer.

This species differs from *H. dactylidis* ( Hayhurst, 1919 ) and H. *palmere* H. R. Lambers 1949 by without secondary rhinaria on 3rd antennal segment of aptera. A cotype slide of this species was kept in H. R. Lambers' collection.

40′.Siphunculi longer than the cauda, with flange. ..... 41

41. Head with a median frontal tubercle, 3rd antennal segment of aptera without secondary rhinaria, but secondary rhinaria of 3rd and 4th antennal segment of alate present. ..... 42

41′.Head without a median frontal tubercle, frons nearly straight..... 43

42. Head smooth entirely. ..... *Ericolophium* n. g.

*Ericolophium* n. g. (fig. 12 & 13.)

Head smooth. Antennal tubercles well developed, diverging, smooth, little higher than median frontal tubercle. Median frontal tubercle well conspicuous, smooth, littl lower than antennal tubercles, antenniferous line w-shaped. 3rd Antennal segment of aptera without rhinaria, 3rd and 4th antennal segment of alate with rhinaria, processus terminalis about 2-3 times as long as the base. Ultimate rostral segment little longer than second tarsus. Sipunculi cylindrical, faintly imbricated, flange large. Caudaelongate, about half length of siphunculi, little constricted near basal one third. Anal plate broadly rounded. Wing venation normal.

Geneotype: *Macrosiphum itoe* Takahashi, 1923.

This new genus comes to near *Metopolophium* Mordvilko, 1914 which rhinaria confined to 3rd antennal segment of alate only and head with spinules on frontal margin.

There are 2 species known from China, they may be separated as follow:

a. Number of setae of last 2 rostral segments normal. Second tarsal segment imbricated. ..... *itoe* (Takahashi,1923)

Synonym: *Macrosiphum itoe* Takahashi, 1923. Host: *Rhododendron*. Distribution: Taiwan.

a′. Last 2 rostral segments with many setae and second tarsi with spinules in imbrication. ..... *holsti* (Takahashi, 1935)

Synonym: *Macrosiphum holsti* Takahashi, 1935. Host: *Rhodcdendron morii*, Distribution: Taiwan.

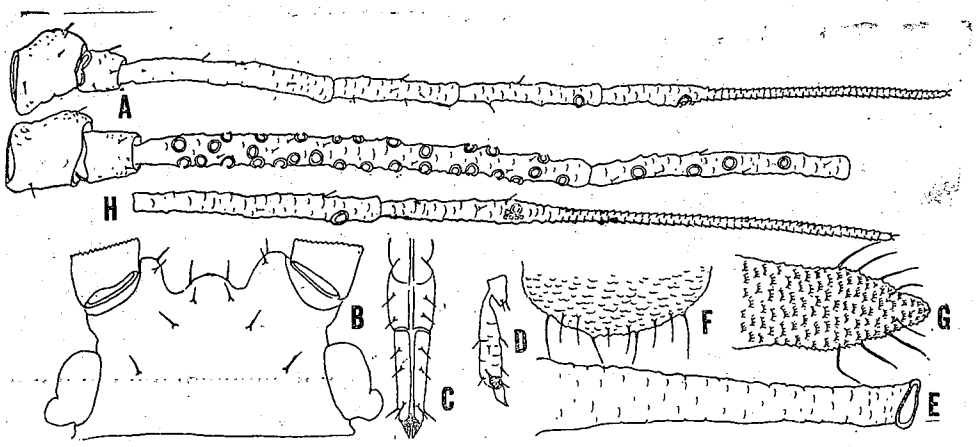


Fig. 12. *Ericolophium* (n. g.) *itoe* (Takahashi, 1923)
A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus, F cauda and G anal plate of apterous viviparous female; H antenna of alate viviparous female.

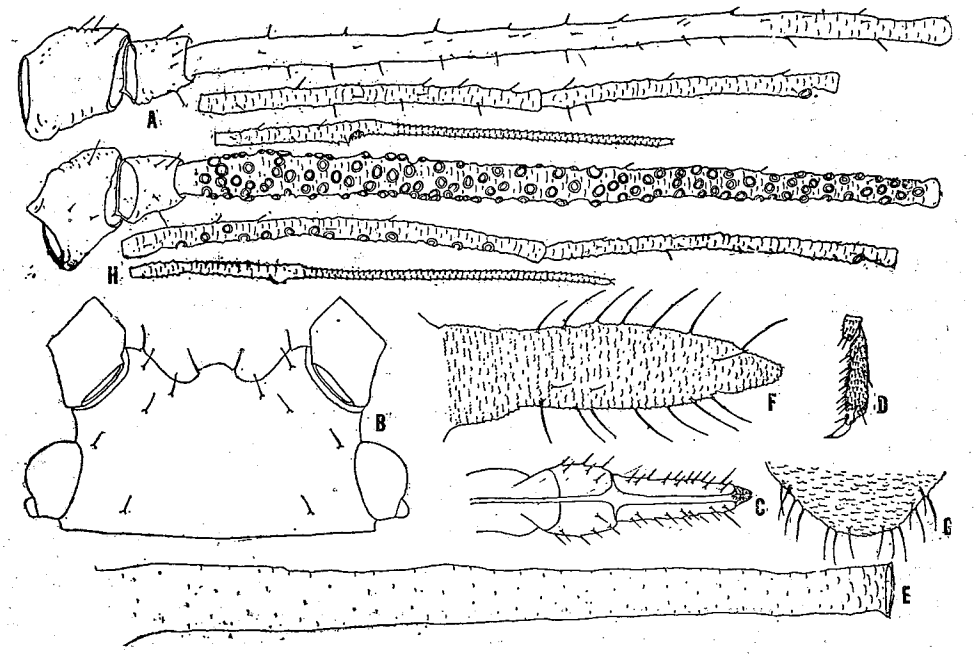


Fig. 13. *Ericolophium holsti* (Takahashi, 1935)
A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus, F cauda and G anal plate of apterous viviparous female; H antenna of alate viviparous female.

42′. Head spinulose on median frontal tubercle and frontal tubercles, but smooth on the dorsum of head. ..... *Metopolophium* Mordviko, 1914

Only one species known from China, i. e. *euryae* ( Takahashi, 1937 ) Synonym: *Macrosiphum euryae* Takahashi, 1937. Host: *Eurya* sp., Distribution: Taiwan.

43. 3rd Antennal segment of aptera without secondary rhinaria. Siphunculi curved outward at middle length. ..... *Neoacyrthosiphon* n. g.

*Neoacyrthosiphon* n. g. (fig. 14.)

Antennal tubercles distinct, but short, not imbricated, slightly convex on mesal side. 3rd Antennal segment of aptera without rhinaria. Thorax and abdomen densely corrugated over dorsum and remaining to process many short, rounded papillae. Siphunculi long, rather stout, directed posteriorly, not reticulated, apically with a distinct constriction near middle length. Anal plate broadly rounded, with some hairs below the constriction. Alate form unknown.

Genotype: *Acyrthosiphon taiheisanum* Takahashi, 1935.

Only one species known from China, i. e. *taiheisanum* (Takahashi, 1935).

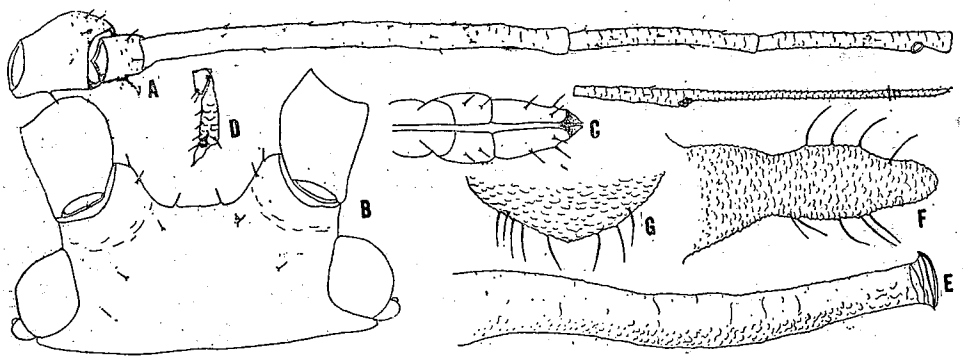


Fig. 14. *Neoacyrthosiphon* (n. g.) *taiheisanum* (Takahashi, 1935)
A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus, F cauda and G anal plate of apterous viviparous female.

Synonym: *Macrosiphum taiheisanum* Takahashi, 1935. Host: *Rhododendron formosanum*. Distribution: Taiwan.

43′, 3rd Antennal segment of aptera with secondary rhinaria. Siphunculi straight. ..... 44

44. Cauda conical, little shorter than the length of head. .....
..... *Microlophium* Mordvilko, 1914

Only one species known from China, i. e. *evanesi* (Theobald, 1923) Synonyms: *Aphis urticae* Schrank, 1801; *Siphonophora urticae* Koch, 1855; *Macrosiphum urticae* Schouteden, 1906; *Acyrthosiphon* (*Microlophium*) *urticae urticae* Mordvilko, 1941; *Amphorophora evansi* Theobald, 1923; *Macrosiphum schranki* Theobald, 1927;

*Macrosiphum carnosum* Lindinger, 1932; *Macrosiphum carnosus* Borner, 1932. Host: *Urtica dioica*. Distribtiton: Sikong; Europe.

44′. Cauda elongate, distinctly longer than the length of head. ..... *Acyrthosiphon* Mordvilko 1914

There are 4 species known from China. They may be separated as follow:

a. Body black. Siphunculi with some reticulations and imbrications below the flange. ..... *smilaceti* ( Takahashi, 1924)
Synonym: *Macrosiphum smilaceti* Takahashi, 1924. Host: *Smilax* sp., Distribution: Taiwan; Korea, Japan.

a′. Body yellowish green, Siphunculi without reticulations. ..... b

b. Siphunculi slender as thick as the 3rd antennal segment. 4th antennal segment of alate without secondary rhinaria. ..... *pisum* (Harris, 1776)
Synonyms: *Aphis pisum* Harris, 1776; *Aphis onobrychis* Boyer de Fonscolombe, 1841; *Aphis lathyri* Mosley, 1841; *Siphonophora spartii* Koch, 1855; *Siphonophora ononis* Koch, 1855; *Siphonophora pisi* Koch, 1855; *Siphonophora ulmariae* Passerini, 1863; *Siphonophora corydalis* Oestlund, 1886; *Nectarophora pisi* Sanderson, 1900; *Nectarophora destructor* Johnson, 1900; *Nectarophora pisi* Sanderson. 1900; *Nectarophora pisi destructor* Sanderson, 1901; *Macrosiphum trifolii* Pergande, 1904; *Macrosiphum ononis*. Schouteden, 1906; *Macrosiphum pisi* Chittenden, 1909: *Acyrthosiphon pisi* Mordvilko, 1914; *Acyrthosiphon pisi destructor* Mordvilko, 1914; *Acyrthosiphon pisi turanicum* Mordvilko, 1914; *Acyrthosiphon pisi ussuriensis* Mordvilko, 1914; *Macrosiphum theobaldi* Davis, 1915; *Macrosiphum* (*Acyrthosiphon*) *genisiae* Theobald, 1917; *Macchiatiella trifolii* Guercio, 1917; *Illinoia pisi* Fluke, 1925; *Anuraphis* (*Macchiatiella*) *trifolii* Guercio, 1930; *Anuraphis* ( *Macchiatiella* ) *promedicaginis* Guercio, 1930; *Macrosiphon onobrychis* Behlen, 1934; *Acyrthosiphon onobrychis* Knechtel, 1940. Hosts: *Pisum sativum*, *Robinia psedoaccacia*, *Vicia faba*, *Vigna sinensis*. Distribution: Szechuan, Taiwan; cosmopolite.

b′. Siphuncli thicker than 3rd antennal segment, 4th antennl segment of alate with some rhinaria. ..... c

c. Tibiae imbricated indistinctly. ..... *evodiae* (Takahashi, 1929)
Synonym: *Macrosiphum evodiae* Takahashi, 1929. Host: *Evodia triphylla*. Distribution: Taiwan.

c′. Tibiae imbricated distinctly. ..... *elaeocarpi* n. sp.

*Acyrthosiphon elaeocarpi* n. sp. (fig. 15.)

Aptera: Body whitish yellow. Antennal segments I, II, legs except apices of tibiae and tarsi, siphunculi yellowish brown. Antennal segments III – VI, apices of tibiae, tarsi, cauda and anal plate blackish brown.

Intugment of head and prothorax coarse, spinulose, mesothorax especially on side reticulated, abdomen smooth. Hairs simple. Antennal tubercles promi-

nently protruded on mesal side, slightly diverging, spinulose, frons with 2 long curved hairs on each mesal side . Dorsum of head between the compound eyes with 4 long hairs and arranged in a transverse row, behind the mesal side and frons with 3 long hairs arranged in a slope line. Antennae 6 segmented, I and II granulose, but I much wider and a little longer than II, III smooth, but imbricated at apex, with 1 or 2 small round rhinaria near the base, imbricated, hairs on antenna stout, shorter than the circumference. Relative length of antennal segments I-0.1520, II-0.1216, III-0.7600, IV-0.5472, V-0.5470, VI-(0.1824 +0.6992). Rostrum short, extending to the base of 2nd coxae, ultimate segment a little longer than penultimate segment, gradually narrowed towards the apex.

Prothorax with lateral tubercles. Coxa and trochanter defined, femur with wax-like structure, tibia as stout as antennal segmet III, first tarsal chaetotaxy 2 : 2 : 2., empodial hair simple.

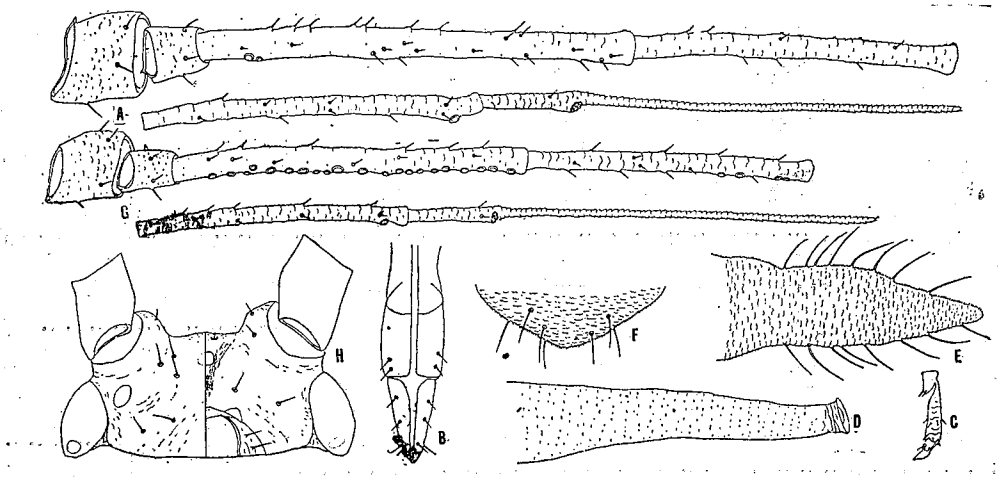


Fig. 15. *Acyrthosiphon elaeocarpi* n. sp.

A antenna, B rostrum, C hind tarsus including claw, D siphunculus, E cauda and F anal plate of apterous viviparous female; G antenna and H head of alate viviparous female.

Abdominal tubercles small, not prominent. Siphunculi cylindrical, a little expended at base, gradually narrowed to the flange, faintly spinulose, with some imbrications just below the flange. Cauda elongated, spinulose, with about 8 long curved hairs on each side. Anal plate rounded, with some long curved hairs.

Body length 3.498, width 1.650, antenna length 3.010, hind tibia length 1.900, siphunculus length 0.330, width at base 0.132, at narrow part 0.058, cauda length 0.561, width 0.198, at constricted part 0.132 mm..

Alate: Head, antennae, legs, wing veins, lateral tubercles of lst to 6th abdominal segment, 4 dorsal patches of 7th abdominal segment and one dorsal patch of 8th abdominal segment, siphunculi, cauda and anal plate blackish brown, wing veins and abdomen transparent.

Head smooth. Antennal tubercles prominent, protruded on mesal side, slightly diverging, with 3 hairs on mesal side, dorsum of head with about 10 hairs. Antenna 6 segmented, granulose, I much wider and a little longer than II, III and IV imbricated, with 18-19, and 5-8 small circular rhinaria which arranged in a single row at the outside. Antennal hairs stout, shorter than their circumference. The relative length of segments I—0.1216, II—0.0912, III—0.6080, IV—0.5492, V—0.5168, VI—0.1824+0.6992. Rostrum short, extending to the front of 2nd coxae.

Along the whole margin of both wings punctutated, stigma of fore wing narrow, imbricated, radial sector curvd, media twice branched, both media and cubitus of hind wing present, humuli 2. Legs, siphunculi, cauda and anal plate same as the aptera.

Body length 3.168, width 1.408, antenna length 2.768, forewing length 3.498, width 1.524, hind tibia length 1.848, siphunculus length 0.561, width 0.099, cauda length 0.429, width at base 0.099, at constricted part 0.099 mm..

Host: *Elaeocarpus serratus* (Elaeocarpaceae)

22 Alate, 3 winged nymphs and l aptera were taken by Dr. Evert I. Schlinger.

45. Secondary rhinaria of 3rd antennal segment of aptera less than 10, confined to its base. ……46

45′. Secondary rhinaria of 3rd antennal segment of aptera at least more than 10, and at least occupied the basal half of the segment. …… 47

46. Frontal tubercles low, median frontal tubercle prominent. Secondary rhinaria of 3rd antennal segment of alate arranged in a single row. Tergite in aptera sclerotic with obsolete segmentation, very often coloured. ……*Sitobion* Mordvilko, 1914

There are 3 species known from China, they may be separated as follow:

a. Dorsum of aptera black. …… *smilacifolium* Takahashi, 1921
Synonym: *Macrosiphum granarium* Takahashi (nec Kirby, 1923) Hosts: *Smilax China*. *Smilax* sp.. Distribution: Taiwan, Kwangtung.

a′. Dorsum of aptera not black. …… b

b. Antnnae and siphunculi of aptera black. Abdominal central patch of alate absent. …… *avenae* Fabricius, 1775
Synonyms: *Aphis avenae* Fabricius, 1775; *Aphis granaria* Kirby, 1798; *Aphis hordei* Kyber, 1815; *Aphis cerealis* Kaltenbach, 1843; *Aphis lycopsidis* Walker, 1848; *Siphonophora cerealis* Koch, 1855; *Siphonophora avenae* Thomas, 1879; *Nectarophora granaria* Oestlund 1887; *Macrosiphum granarium* Schoutededen, 1901; *Siphonophora granaria* Pergande 1904; *Macrosiphum cerealis* Mokrzecki, 1913; *Macrosiphum alii* Jackson, 1918; *Sitobion avenae* Mordvilko,

1921; *Macrosiphum miscanthi* Takahashi, 1921; *Macrosiphum alopecuri* Takahashi, 1921; *Aphidella secretocauda* Theobald, 1923; *Illinoia granaria* Soliman, 1927; *Macrosiphoniella triglochiniella* Theobald, 1928; *Macrosiphum berchemiae* Takahashi, 1938; *Macrosiphum phyllanthi* Takahashi,1938; *Macrosiphum akebiae* Shinji, 1941; *Macrosiphum impatiensae* Shinji, 1941. Hosts: *Alopecurus aequalis*, *Miscanthus* sp., *Oryza sativa*, *Phyllanthus emblica*, *Setaria glauca*, *Triticum vulgare*. Distribution: Taiwan, Fuckien, Kwangtung, Chekiang, Szechuan, Liaoning; Korea, Japan, Ryukyu; America; Europe; Africa.

b′. Antennae and siphunculi of aptera yellowish white. Abdominal central patch of alate present..... *smilacicola* (Takahashi, 1924)

Synonym: *Macrosiphum smilacicola* Takahashi, 1924. Host: *Smilax stenopetala*. Distribution: Taiwan. Ryukyu.

46′ Frontal tubercles high, without median frontal tubercle. Secondary rhinaria not arranged in a single row. ..... *Macrosiphum* Passerini, 1860.

There are 4 species known from China, they may be separated as follow:

a. Siphunculi shorter than 3rd antennal segment. ..... b

a′. Siphunculi as long as 3rd antennal segment. ..... c

b. Cauda elongate, longer than the length of head. .....
..... *rubiformosanum* Takahashi. 1927

Synoym: *Macrosiphum rosae* L.? Takahashi, 1923. Host: *Rubus* spp.. Distribution: Taiwan.

b′. Cauda short, constricted near middle, shorter than the length of head.···
..... *flavum* n. sp.

*Macrosiphum flavum* n. sp. (fig. 16.)

Aptera: When alive body yellowish green to yellow, eyes red. Specimens treated with caustic potash and mounted in balsam, body pale, distal halves of antennal segment III to processus terminalis, ultimate rostral segment, apices of femora, tibiae, tarsi including claws, apices of siphunculi blackish brown. Head, legs, cauda and anal plate dusky.

Body intugment smooth, head smooth, frontal tubercles nearly parallel on the mesal side, smooth; frons straight, smooth. Eyes large, with distinct ocular tubercles, Antennae 6-segmented, I, II and basal half of III nearly smooth, near the base of III with 2-4 small circular rhinaria, IV without secondary rhinaria, primary rhinaria normal. The relative length of antennal segments as follow; I-0.1520, II-1064, III-0.8664, IV-0.5928, V-0.5168, VI-0,1824+1.1064 mm.. Rostrum extending beyond fore coxae. Legs normal, smooth, first tarsal chaetotaxy: 3 : 3 : 3. Abdomen without any sclerites and scleroites. Siphunculi cylindrical, smooth, dialated at base and gradually narrowed to apex, flange small, below flange with 2 to 3 rows of reticulations and 3 to 4 striations below

the reticulations, remaining parts with some minute spinules in imbrications. Cauda elongate, spinulose, constricted near middle, with 2 long curved hairs on each side and one on the dorsal portion. Anal plate broadly rounded, spinulose, with some long curved hairs on the outer margin.

Body length 2.8880, width 1.4440, antenna length 3.4008, fore tibia length 1.4896, hind tibia length 2.0368, siphunclus length 0.7600, width at base 0.1672, at apex 0.0608, cauda length 0.2548, width at base 0.1824, at middle 0.1064 mm..

Alate: Head, antennal segments I. II and base of III, rostrum, thorax, coxae, trochanters, basal parts of femora, wing veins and siphunculi yellowish black; antennal segments III to VI, distal halves of femora, whole length of tibiae, tarsi including claws, 2nd, 3rd, 4th abdominal marginal sclerites, 3rd, 4th and 5th abdominal transversal sclerites, apices of siphunculi, ante-and post-siphuncular sclerites blackish brown; rest pale.

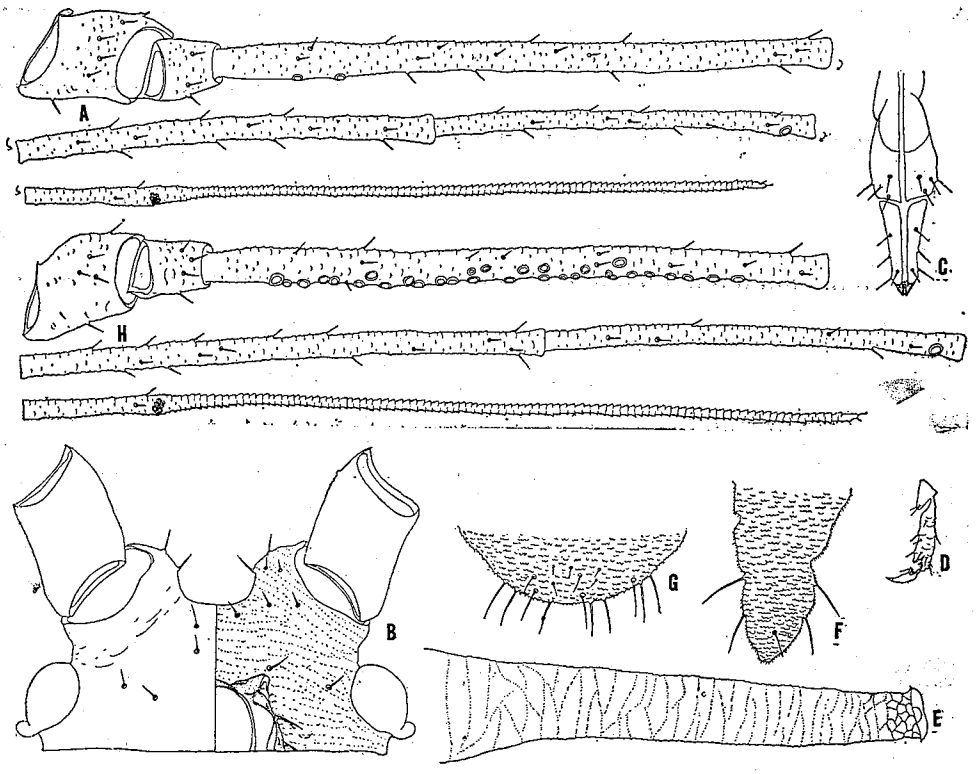


Fig. 16. *Macrosiphum flavum* n. sp.
A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus, F cauda and G anal plate of apterous viviparous female; H antenna of alate viviparous female.

Head smooth, purplish black around median and lateral ocelli. Antennae 6- segmented, I and II spinulose, III to processus terminalis imbricated, III with 30 - 40 small circular rhinaria which scattered over the whole length except both ends, IV without secondary rhinaria. The relative length of antennal segments as follow: I-0.1672, II-0.0912, III-0.7296, IV-0.5776, V-0.4864, VI-0.1976+1.4868 mm.. Rostrum short, extending before middle coxe. Legs normal. Wing venation normal, stigma imbricated, membrane smooth, outer margin punctured. 3rd, 4th and 5th dorsal abdominal transversal sclerites fused to form a large quadrangular patch or separated each other, smooth, post siphuncular sclerites spinulose. Siphunculi, cauda and anal plate same as the aptera.

Body length 3.0400, width 1.2160, antenna length 2.1300, fore wing length 3.9216, width 1.5200, fore tibia length 1.4542, hind tibia length 1.8240, siphunculus length 0.5776, width at base 0.1216, at apex 0.0608, cauda length 0.2128, width at base 0.1064, at constricted portion 0.0760 mm..

Host: Not determined.

Locality: Many winged and wingless viviparous females were taken on Oct. 17, 1936 by Mr. Chuen Ho and in Nov, 1938 at Chengtu, Szechuan by the writer and some wingless oviviparous females were taken on Nov. 29. 1938 by the writer.

Apterous oviparous female similar to apterous viviparous female but the ultimate rostral segment short and blunt, hind tibiae swollen and with many psudorhinaria over the basal swollen two thirds. Males were not yet collected.

The generic postion of *Macrosiphum rubiformosanum* Takahashi and the new species are uncertain, they may belong to *Macrosiphum* by having few rows of reticulations, but the frontal tubercles are nearly parallel on the mesal side and not diverging, or may belong to *Aulacorthum* by the shape of frontal tubercles which without spinules, grunules or imbrications but instead of smooth.

c. On *Rosa* spp. ..... *rosaeibarae* Matsumura, 1917
Synonyms: *Macrosiphum rosae* Maki nec Linne, 1915; *Macrosiphum roaeiformis* Das, 1918; *Macrosiphum sumatraensis*, Takahashi, 1927, *Macrosiphum ibare* Takahsashi, 1930; *Macrosiphum rosaeibarae* Takahashi, 1931. Hosts: *Rosa* spp.. Distribution: Taiwan, Fuckien, Kwangtung, Chekiang, Kiangau, Szechuan, Sikong, Honan, Shantung, Liaoning; Korea, Japan, Ryukyu, Sumatra, Malaya, India.

c'. On *Clematis* spp. ..... *clematidis* Takahashi, 1927
Synonym: *Macrosiphum* sp. Takahashi, 1924. Host: *Clematidis gouriana*. Distribution: Taiwan; Japan.

47. Siphunculi distinctly longer than the cauda. ..... 48

47'. Siphunculi as long as the cauda. ..... 49

48. Cauda yellow. ..... ..... *Dactynotus* Rafinesque, 1818

There are 3 species known from China, they may be separated as follow:

a. 3rd Antennal segment longer than 4th and 5th taken together, with numerous protuberant rhinaria over the whole length, ultimate rostral segment as long as 2nd tarsal segment. Siphunculi about 1.4 times as long as cauda. ..... ..... *formosanus* (Takahashi 1921)

Synonyms: *Macrosiphum picridis* Maki nec L. 1916; *Macrosiphum formosanum* Takahashi, 1921; Hosts: *Lactuca brevirostris*, *L. debilis*, *L. formosanus*, *L. scariola*, *L. gracilis*, *L. squarosa*, *L. sativa*, *L. indica*, *Sonchus oleracea*, *S. lacocoides*, *Senecio* sp.. Distribution: Taiwan, Fuckien, Kwangtung, Szechuan, Honan, Hopei, Chekiang, Shantung; Korea, Ryukyu, Japan.

a′. 3rd Antennal segment as long as or shorter than 4th and 5th combined, rhinaria normal, not protuberant. Siphnuculi nearly twice as long as cauda. ..... ..... b

b. 3rd Antennal segment shorter than 4th and 5th combined. Ultimate rostral segment much narrow and about 1.3 times as long as penultimate segment. ..... ..... *monticolus* (Takahashi, 1935)

Synonym: *Macrosiphum monticolum* Takahashi, 1935. Host: a species of Compositae. Distribution: Taiwan, Fuckien, Szechuan; Japan.

b′. 3rd Antennal segment as long as the penultimate segment.. *helianthi* n. sp.

*Dactynotus helianthi* n. sp. (fig. 17.)

Aptera: Body yellowish green, antennae, ultimate rostral segment, apices of femora, apices of tibiae, tarsi including claws, whole length of siphunculi blackish brown. Body smooth, without any sclerites or scleroites. with the exception of the not well prominent ante-and post-siphuncular sclerite present. Hairs fine, short, little shorter than lst tarsal segment. Head smooth, with distinct frontal sinus. Antennal hairs little shorter than diameter of 3rd antennal segment, Ist and 2nd segment smooth,3rd with about 25-23 small circular rhinaria, which scattered over the whole length, 4th without secondary rhinaria. The relative length of antennal segment as follow:I—0.1150, II—0.0805, III—0.7705, IV—0.4945, V—0.4140, VI—0.1150+0.6325 mm.. Rostrum short, extending between 2nd coxae, ultimate segment short, little longer than 2nd tarsal segment. Legs smooth, first tarsal chaetotaxy 3 : 3 : 3. Siphunculi cylindridal, little longer than 3rd antennal segment, gradually broaded from apex to base, flange distinct, with about 10 rows of reticulations below flange and some broken imbrications, belowing imbrications to the base smooth. Cauda elongate, spinulose, little constricted near basal one fourth, below the narrowed portion, there are 4 long

curved hairs on each side and an apical one on the distal portion. Anal plate broaded round, with some similar hairs on the outer margin.

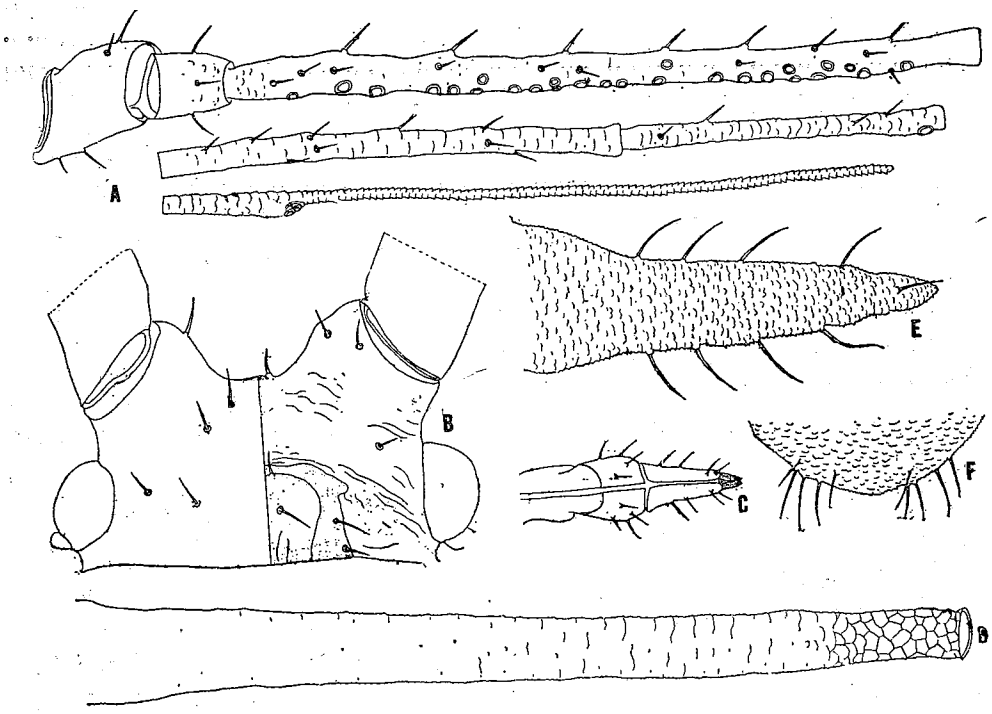


Fig. 17. *Dactynotus helianthi* n. sp.
A antenna, B head, C rostrum, D siphunculus, E cauda and F anal plate of apterous viviparous female.

Body length 2.4080, width 1.1200, antenna length 2.5536, fore wing length 1.1760, hind tibia length 1.9264, siphunculus length 0.8062, width at base 0.1008, at apex 0.0448, cauda length 0.3808, width at base 0.1344, at narrowed portion 0.0784 mm..

Host: *Helianthus annus* L. (Compositae).

Locality: Some apterous viviparous females were collected by Mr. Ke-yang Wu on May 31, 1936 at Kun-Hsien, Szechuan.

This species differs from the other known ones by having more secondary rhinaria scattered over the whole length of 3rd antennal segment, longer siphunculi and less reticulations as well as without any sclerites or scleroites on the body except the not well prominent ante-and post- siphuncular sclerites.

48′. Cauda black. .....*Uromelan* Mordvilko, 1914

There are 5 species known from China, they may be separated as follow:

a. Body without any sclerites or scleroites. ..... b

a′. Body at least with scleroites. ..... c

b. Tibiae blackened at both ends, median portion of tibiae yellowish brown. Ist and 2nd antennal segment same color as the following segments. ..... *solidaginis* Fabricius 1794

Host: *Blumea balsamifera*. Distribution: Taiwan.

b′. Tibiae blackened thoroughout. Ist and 2nd antennal segment paler than the following segments. ..... *omeishanensis* n. sp.

*Uromelan omeishanensis* n. sp.

Aptera: yellowish green, 3rd to 6th antennal segment, rostrum, apices of femora, tibiae, tarsi including claws, siphunculi, cauda blackish brown, Rest yellowish white, without any sclerites or scleroites.

Body intugment smooth. Hairs flexible, as long as or little shorter than the diameter of siphunculi. Head smooth, frons distinctly concave, dorsum of head with 4 long hairs along the frontal margin, 4 between the compound eyes and 2 between them. Compound eyes and ocular tubercles moderately large. Ist and 2nd antennal segment smooth, 3rd to 6th strong, 3rd with about 14 small circular rhinaria which more or less protruded irregularly and scattered on the basal two thirds, 4th without secondary rhinaria, antennal hairs straight, nearly as long as or little shorter than the diameter of their beared segments. The relative length of antennal segments as follow. I-0.1216, II-0.0912, III-0.7752, IV-0.5776, V-0.5624, VI-0.2584+0.9424 mm.. Rostrum long, extending to the base of hind coxae. Ultimate segment long, longer than tarsus, rostral hairs long. Legs smooth, hairs on femora and tibiae stiff, Ist tarsal chaetotaxy 4 : 4 : 4. Siphunculi cylindrical, reticulated nearly extending to apical one third, below imbricated and extending to middle one third, smooth at basal one third. Cauda elongate, shorter than siphunculi, tapering, not constricted, as thick as the siphunculi, minute spinules in imbrication, with 7 or 8 long hairs on each side. Anal plate broadly rounded, minutely spinulose, with some long hairs at outer margin.

Body length 2.8428, width 1.2160, antenna length 3.2680, fore tibia length 1.1704, hind tibia length 1.7176, siphunculus length 0.7600, width at base 0.2128, at apex 0.0760, cauda length 0.4560, width at base 0.1500 mm..

Alate: Yellowish green, 3rd to 6th antennal segment, apical halves of femora, tibiae, tarsi including claws, rostrum, siphunculi, cauda, wing stigma blackish brown, Ist and 2nd antennal segment, basal halves of femora yellowish brown. Rest pale, lateral and median ocelli surrounded with black marking,

3rd Antennal segment with about 50 small circular rhinaria, little protruded

and scattered over the whole length. The relative length of antennal segments as follow: I-0.0164, II-0.0912, III-0.8512, IV-0.5928, V-0.5624, VI-0.1824, +0.9120 mm., venation normal, stigma imbricated, membrane smooth, dotted at outer margin. Rest characters similar to aptera.

Body length 2.9184, width 1.1096, antenna length 3.2984, fore tibia length 1.2920, hind tibia length 1.7176, fore wing length 2.9336, width 1.0488, siphunculus length 0.6080, width at base 0.1368, at apex 0.0760, cauda length 0.3496, anal plate length 0.1520, width 0.520 mm..

Host: *Artemisia* sp.

Locality: Four aptera and 2 alate were taken by the writer on August 11, 1936 at Omeishan, Szechuan.

This species is near to *Macrosiphum gigantea* Matsumursa 1918 but it can be distingushed by fewer caudal setae, without any sclerites or scleroites of the abdomen and more secondary rhinaria of 3rd antennal segment.

c. Ultimate rostral segment short, shorter than 2nd tarsal segment, with antesiphuncular sclerite.····· *debilis* (Takahashi, 1923)
Synonym: *Macrosiphum debilis* Takahashi, 1923. Host: *Lactuca debilis*. Distribution: Taiwan.

c'. Ultimate rostral segment as long as or longer than 2nd tarsal segment, with postsiphuncular sclerite.····· d

d. 3rd Antennal segment with many rhinaria extending nearly whole length except both ends. Ultimate rostral segment narrow, about twice as long as base of 6th antennal segment. Siphunculi about twice as long as cauda.····· *gobonis* (Matsumura, 1917)
Synonyms: *Macrosiphum solidaginis* Maki nec Fabricius, 1916; *Macrosiphum gobonis* Matsumura, 1917; *Macrosiphum rudbeckiae* Essig et Kuwana, 1918; *Macrosiphum ambrosiae* Takahashi nec Thomas, 1923; *Macrosiphum* sp. Takahashi, 1929; *Macrosiphum lactucicola* Strand, 1929; *Macrosiphum amamium* Takahashi, 1930. Hosts: *Arctium lappa*, *Blumea balsamifera*, *Chrysanthemum coronarium*, *Cirsium japonicum*, *C. kawakamii*, *Gnaphalium multiceps*, *Saussurea affinis*, *Gaillardia aristata*, *Valeriana valerianifolia*. Distribution: Taiwan, Fuckien, Kwangtung, Chekiang, Kiangsu, Shantung, Hopei, Szechuan, Sikong, Liaoning; Japan, Korea, Ryukyu, India, Sumatra.

d'. 3rd Antennal segment of aptera with 19-15 secondary rhinaria confined to basal half, primary rhinarium of 5th protruded. Ultimate rostral segment about as long as the base of 6th antennal segment. Siphunculi about 1.5 times as long as cauda.····· *lactucicola* (Strand, 1929)
Synonyms: *Macrosiphum* sp. 1925; *Macrosiphum lactucicola* Strand, 1929. Hosts: *Solidago virga-aurea*, *Lactuca oldhami*. Distribution: Taiwan,

Szechuan; Japan.

49. Frontal tubercles rather short, not convex on the mesal side. Frons not concave, nearly straight, without sinus.....*Sinosiponiella* n. g.

*Sinosiphoniella* n. g. (fig. 18.)

Antennal tubercles rather short, not convex on mesal side. Frons not concave, nearly straight, without sinus. Both aptera and alate with secondary rhinaria on 3rd antennal segment. Rostrum stiletto-shaped. Siphunculi cylindrical, basal half imbricated, distal half reticulated, apex without distinct flange. Cauda elongate, broadly at base and abruptly narrowed towards apex, with many long hairs below distal half. Anal plate broadly rounded. Wing venation normal.

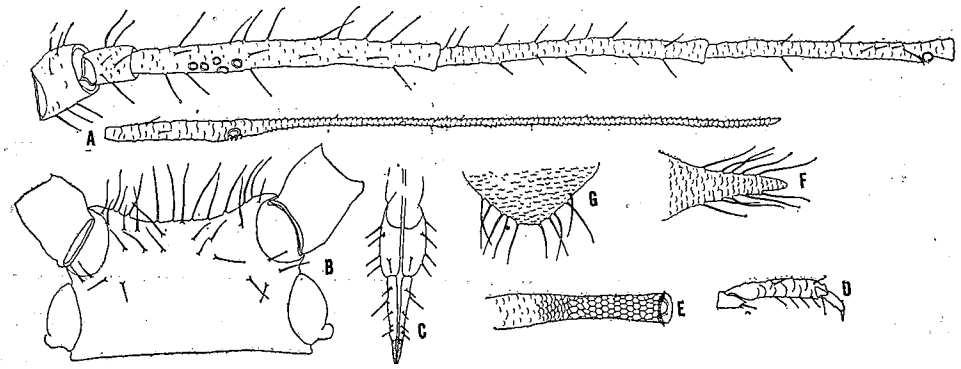


Fig. 18. *Sinosiphoniella kuwayamai* (Takahashi, 1937)
A antenna, B head, C rostrum, D hind tarsus including claw, E siphunculus, F cauda and G anal plate of apterous viviparous female.

Genotype: *Macrosiphoniella kuwayamai* Takahashi, 1941.

This new genus can be separated from *Macrosiphoniella* del Guercio, 1911 by short antennal tubercles, straight frons and abruptly long and narrowed cauda.

Only one species known from China, i. e. *kuwayamai* (Takahashi, 1941).

Synonym: *Macrosiphoniella kuwayamai* Takahashi, 1941. Host: *Artemisia* sp.. Distribution: Liaoning, Korea, Japan.

49′. Frontal tubercles high. ..... 50

50. Secondary rhinaria presented on 3rd and 4th antennal segment. On *Chrysanthemum*. ..... *Pyrethromyzus* Borner, 1944

Only one species known from China, i. e. *sanborni* (Gillette, 1908)

Synonyms: *Macrosiphum chrysanthemi* Sanborn, 1904; *Macrosiphum sanborni* Gillette, 1908; *Siphonophora chrysanthemicolens* Williams, 1910; *Macrosiphonella chrysanthemi* del Guercio, 1911; *Macrosiphoniella chrysanthemi* var. *brevicauda* del Guercio, 1913; *Macrosiphoniella bedfordi* Theobald, 1914; *Macrosiphum nishigaharae* Essig et Kuwana, 1918. Host: *Chrysanthemum sinense*. Distribution:

Taiwan, Fuckien, Kwangtung, Chekiang, Szechuan, Hopei, Honan, Japan, Ryukyu, Thailand, Malaya; Cosmopolite.

50′. Secondary rhinaria only presented on 3rd antennal segment in alate form…… ……*Macrosiphoniella* s. s.

There are 9 species known from China. They may be separated as follows;

a. Body without scleroites. ……b

a′. Body with scleroites. …… f

b. Secondary rhinaria of 3rd antennal segment of aptera more than 10, arranged over the basal half. …… *artemisiae* (Boyer, 1841)

Synonyms: *Aphis artemisiae* Boyer de Fonscolombe, 1841; *Aphis absinthii* Walker, 1848; *Siphonophora tanacetaria* Koch, 1855; *Siphonophora artemisiae* Ferrari, 1872; *Macrosiphum artemisiae* Theobald, 1913; *Macrosiphoniella artmisiae* Guercio, 1931; *Neoacaudus inflatus* Theobald, 1928. Host: Compositae. Distribution: Shantung; Europe, Siberia.

b′. Secondary rhinaria of 3rd antennal segment of aptera less than 10, arranged irregularly. …… c

c. Tibiae black thoroughoutly. ……d

c′. Apical end or both ends of tibiae blackish brown, middle portion of tibiae yellowish brown. …… e

d. Base of 3rd antennal segment blackish brown, frons nearly straight. …… …… *fulvicola* Shinji, 1933

Host: *Artemisia* sp.. Distribution: Szechuan; Japan.

d′. Whole length of 3rd antennal segment blackish brown, frons concave. … …… *yomogifoliae* (Shinji, 1922)

Synonyms: *Macrosiphoniella tanacetaria* Takahashi nec Kaltenbach, 1921; *Macrosiphum yomogifoliae* Shinji, 1922. Hosts: *Artemisia vulgaris*, *A. vulgaris* var. *indica*, *Chrysanthemum sinense*. Distribution: Fuckien, Taiwan, Chekiang, Szechuan, Shensi; Japan, Malaya.

e. Siphunculi longer than 4th antennal segment.…… ……*cayraticae* Tseng et Tao, 1936

Host: *Cayratica japonica*. Distribution: Shantung.

e′. Siphunculi shorter than 4th antennal segment. …… …… *pseudoartemisiae* Shinji, 1933

Host: *Artemisia anuna*. Distribution: Shantung, Szechuan, Sikong; Japan.

f. Post siphuncular sclerite present but without ante-siphuncular sclerite, reticulation of siphunculi extending to one third of the length. …… …… *yangi* Takahashi, 1937

Host: A Compositae. Distribution: Fuckien.

f′. Ante-siphuncular sclerite present but without post-siphuncular sclerite, reticulation of siphunculi extending to its half length. …… g

g. 3rd Antennal segment brown, secondary rhinaria small, more than 30,

extending over the whole length. ..... *yomenae* ( Shinji, 1922) Synonyms: *Macorsiphum yomenae* Shinji, 1922; *Macrosiphum yomenafoliae* Shinji, 1922; *Macrosiphoniella astericola* Okamoto et Takahashi 1927; *Macrosiphoniella moriokae* Shinji, 1933. Host: A Compositae. Distribution: Szechuan; Korea, Japan.

g′. 3rd Antennal segment pale brown, secondary rhinaria about 10, extending to basal half. ..... h

h. Rostral setae more and longer. ..... *kikungshana* Takahashi, 1937 Host: *Artemisia* sp.. Distribution: Honan, Szechuan, Chekiang.

h′. Rostral setae few and shorter. ..... *formosartemisiae* Takahashi, 1921. Synonym: *Macrosiphoniella japonica* Shinji, 1942. Host: *Artemisia capillaris*, A. sp.. Distribution: Taiwan, Fuckien, Szechuan; Japan.

## List of Genera and Species of Aphids of Subfamily Macrosiphinae in the Revisional Key

Genus 1. *Shinjia* Takahashi, 1938; 1. *S. pteridifoliae* (Shinji, 1928) . .....163

Genus 2. *Pentalonia* Coquerel, 1859; 2. *P. nigronervosa* Coquerel, 1859. .....163

Genus 3. *Matsumuraja* Schmacher, 1921; 3. *M. rubicola* Takahashi, 1927; 4. *M. rubifoliae* (Takahashi, 1922) 5. *M. formosana* Takahashi, 1925.....163–164

Genus 4. *Tuberoaphis* Tseng et Tao, 1943; 6. *T. hydrangeae* Tseng et Tao 1943. ..... 164

Genus 5. *Myzaphis* van der Goot, 1913; 7. *M. rosarum* (Kaltenbach, 1843) ... 164

Genus 6. *Capitophorus* van der Goot, 1913; 8. *C. formosartemisiae* (Takahashi, 1921 ) ; 9. *C. takahashii* Strand, 1925; 10. *C. hippophaes* var. *javanicus* H. R. Lambers, 1952; 11. *C. elaeagni* (del Guercio, 1894) 12. *C. gilletti* Theobald, 1926; 13. *C. montanus* Takahashi, 1931. .....164–165

Genus 7. *Pleotrichophorus* Borner,1930; 14. *P. glandulosus* ( Kaltenbach, 1846 ) . ..... 165

Genus 8. *Cryptomyzus* Oestlund, 1922; 15. *C. taoi* H. R. Lambers, 1956..... 165

Genus 9. *Akkaia* Takahashi, 1919; 16. *A. taiwana* Takahashi, 1933; 17. *A. polygoni* Takahashi, 1919..... 165–166

Genus 10. *Phorodon* Passerini, 1860; 18. *P. omeishanensis* (Tseng et Tao, 1938) ; 19. *P. humuli* (Schrank, 1819) ; 20. *P. humulifoliae* Tseng et Tao, 1938. ..... 166

Genus 11. *Ovatus* van der Goot, 1913; 21. *O. menthae* (Buckton, 1875.) ..... 166

Genus 12. *Metaphorodon* Takahashi, 1961; 22. *M. polygoni* (van der Goot, 1918.) ..... 167

Genus 13. *Trichosiphonaphis* Takahashi, 1921; 23. *T. polygoniformosanus* (Takahashi, 1921) . ..... 167

Genus 14. *Trichosiphoniella* Shinji, 1929; 24. *T. momonis* (Matsumura, 1917 ) .

..... ..... ..... 167
Genus 15. *Neotoxoptera* Theobald, 1915; 25. *T. violae* (Pergande, 1900) ; 26 *T. formosana* (Takahashi, 1921) ..... 167–168
Genus 16. *Macromyzus* Takahashi, 1960; 27. *M. woodwardiae* (Takahashi, 1921) , 28. *M. polypodicola* (Takahashi, 1921) ..... 168.
Genus 17. *Prunomyzus* H. R. Lambers, 1946; 29. *P. sakurae* ( Matsumura, 1917); 30. *P. mushaensis* (Takahashi, 1925) ..... 168–169
Genus 18. *Dysaphis* Borner, 1931; 31. *D. plantagifoliae* (Shinji 1924). .....169
Genus 19. *Micromyzus* van der Goot, 1917; 32 *M. katoi* (Takahashi, 1925). ..... 169
Genus 20. *Kaochiaoja* n. g. 1963; 33. K. *arthraxona* (Takahashi, 1921) .....169–170
Genus 21. *Myzus* Passerini, 1874; 34. *M. niitakaensis* Takahashi, 1937; 35. *M. formosanus* Takahashi, 1923; 36. *M. stellariae* Strand, 1929; 37. *M. hemerocallidis* Takahashi, 1921; 38. *M. boehmeriae* Takahashi, 1923; 39. *M. varians* Davidson, 1912; 40. *M. persicae* (Sulzer, 1776) ; 41. *M. siegesbeckicolus* Strand, 1929; 42. *M. urticae* n. sp., 1963; 43. *M. tsengi* n. sp., 1963..... 170–175
Genus 22. *Aulacorphora* n. g., 1963; 44. *A. formosana* (Takahashi, 1923).....175–176
Genus 23. *Neomyzus* van der Goot, 1915; 45. *N. circumfexus* (Buckton, 1876) . ..... ..... 176
Genus 24. *Sumoia* n. g., 1963; 46. *S. taiwana* (Takahashi, 1923) ..... 176–177
Genus 25. *Subacyrthosiphon* H. R. Lambers, 1937; 47. *S. hoffmanni* (Takahashi, 1937) ..... 177–178
Genus 26. *Aulacorthum* Mordvilko, 1914; 48. *A. takahashii*, (Mason, 1925) ; 49. *A. circicolum* (Takahashi, 1923) ; 50. *A. perillae* (Takahashi, 1924); 51. *A. paederiae* (Takahashi, 1921) ; 52. *A. solani* (Kaltenbach, 1843 ) . ..... 178–179
Genus 27. *Rhodobium* H. R. Lambers, 1937; 53. *R. porosum* (Sanderson, 1901 ) . ..... 179
Genus 28. *Taiwanomyzus* n. g., 1963; 54. *T. montanus* (Takahashi, 1925). .....179–180
Genus 29. *Wahlgreniella* H. R. Lambers, 1949; 55. *W. viburni* ( Takahashi, 1925)..... 180
Genus 30. *Neorhopalomyzus* n. g., 1963; 56. *N. lonicercicola* (Takahashi, 1921) ..... 181
Genus 31. *Rhopalosiphoninus* Baker, 1921; 57. *R. takahashii*, n. sp. 1963..... 181–182
Genus 32. *Titanosiphon* Nevsky, 1928; 58. T. *neartemisiae* (Takahashi, 1921) . ... ..... 183
Genus 33. *Hyperomyzus* Borner, 1933; 59. *R. lactucae* (Linne, 1758) . ..... 22
Genus 34. *Megoura* Buckton, 1876; 60. *M. viciae japonica* (Matsumura, 1918) . ... ..... 183
Genus 35. *Sinomegoura* Takahashi, 1960; 61. *S. photiniae* (Takahashi, 1936) , 62.

*S. citricola* (van der Goot, 1917); 63. *S. rhododendri* (Takahashi, 1937). ..... 183–184
Genus 36. *Amphorophora* Buckton, 1876, 64. *A. lespedezae* (Essig et Kuwana, 1918). ..... 184
Genus 37. *Indomegoura* H. R. Lambers, 1960; 65. *I. indica* (van der Goot, 1916). ..... 184
Genus 38. *Omeimegoura* n. g. 1963; 66. *O. nigrotibiae* n. sp., 1963. ..... 184–185
Genus 39. *Hyalopteroides* Theobald. 1916. 67. *H. sinensis* n. sp. 1963 ..... 185–187
Genus 40. *Ericolobium* n. g., 1963; 68. *E. holsti* (Takahashi, 1935); 69. *E. itoe* (Takahashi, 1923). ..... 187–188
Genus 41. *Metopolophium* Mordvilko, 1914; 70. *M. euryae* (Takahashi 1937) ..... 189
Genus 42. *Neoacyrthosiphon* n. g., 1963; 71. *N. taiheisanum* (Takahashi, 1935). ..... 189
Genus 43. *Microlophium* Mordvilko, 1941; 72. *M. evansi* (Theobald, 1923). ..... 189–190
Genus 44. *Acyrthosiphon* Mordvilko, 1914; 73. *A. smilaceti* (Takahashi, 1924); 74. *A. pisum* (Harris, 1776); 75. *A. evodiae* (Takahashi, 1929); 76. *A. elaeocarpi* n. sp., 1963. ..... 190–192
Genus 45. *Sitobion* Mordvilko, 1914; 77. *S. smilacifolium* (Takahashi, 1921); 78. *S. avenae* (Fabricius, 1775); 79. *S. smilacicola* (Takahashi, 1924). ..... 192–193
Genus 46. *Macrsosiphum* Passerini, 1860; 80. *M. rubiformosanum* Takahashi, 1927; 81. *M. flavum* n. sp., 1963; 82. *M. rosaeibarae* Matsumura, 1917; 83. *M. clematidis* Takahashi, 1927. ..... 193–195
Genus 47. *Dactynotus* Rafinesque, 1818; 84. *D. formosanus* (Takahashi, 1921); 85. *D. monticolus* (Takahashi, 1935), 86. *D. helianthi* n. sp., 1963 ..... 196–197
Genus 48. *Uromelan* Mordvilko, 1914; 87. *U. solidaginis* Fabricius, 1794; 88. *U. omeishanensis* n. sp., 1963; 89. *U. debilis* (Takahashi, 1923); 90. *U. gobonis* (Matsumura, 1917); 91. *U. lactucicola* (Strand, 1929). ..... 197–200
Genus 49. *Sinosiphoniella* n. g., 1963; 92. *S. kuwayamai* (Takahashi, 1941) ..... 200
Genus 50. *Pyrethromyzus* Borner, 1944; 93. *P. sanborni* (Gillette, 1908). ..... 200–201
Genus 51. *Macrosiphoniella* del Guercio, 1911; 94. *M. artemisiae* (Boyer, 1841); 95. *M. fulvicola* Shinji, 1933; 96. *M. yomogifoliae* (Shinji, 1922) 97. *M. cayraticae* Tseng et Tao, 1936; 98. *M. pseudoartemisiae* Shiuji, 1933; 99. *M. yangi* Takahashi, 1937; 100. *M. yomenae* (Shinji, 1922). 101. *M. kikungshana* Takahashi, 1937, 102. *M. formosartemisiae* Takahashi, 1921. ..... 201–202

## Summary

There are 102 species of aphids belonging to Macrosiphinae which have been

occured China and revised, among them 9 new genera: *Kaochiaoja* n. g. *Aulacorphora* n. g., *Sumoia* n. g., *Taiwanomyzus* n. g., *Neorhopalomyzus* n. g., *Omeimegoura* n. g., *Ericolobium* n. g., *Neoacyrthosiphon* n. g., and *Sinosiphnoniella* n. g. were created and 9 new species: *Myzus urticae* n. sp. from Szechuan and Sikong, *Myzus tsengi* n. sp. from Szechuan, *Rhopalosiphoninus takahashii* n. sp. from Taiwan. *Omeimegoura nigrotibiae* n.sp. from Szechuan, *Hyalopteroides sinensis* n. sp. from Szechuan, *Acyrthosiphon elaeocarpi* n. sp. from Taiwan. *Macrosiphum flavum* n. sp. from Szechuan, *Dactynotus helianthi* n. sp. from Szechuan were described as well as alate viviparous female of *Subacyrthosiphon hoffmanni* (Takahashi, 1937) were first described. All of the type specimens were kept in Insect Museum of Taiwan Agricultural Research Institute.

# 中國大管蚜亞科之審訂*

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本文包述大管蚜亞科102種，分隸於51屬。文中先述本亞科之特徵，次立屬及種之檢別表於一起，以便查定，每種之下，附有同種異名，寄主植物，國內外分布地名，末附屬及種之名稱，以便查閱。

大管蚜亞科51屬102種中，新屬凡九，即 1. *Kaochiaoja* n. g. 模式屬 *Myzus arthranonis* Takahashi, 1921; 2. *Aulacophora* n. g. 模式屬 *Myzus formosanus* Takahashi, 1923; 3. *Sumoia* n. g. 模式屬*Myzus taiwanus* Takahashi, 1923; 4. *Taiwanomyzus* n. g. 模式屬 *Myzus montanus* Takahashi, 1925; 5. *Neoacyrthosiphon* n. g. 模式屬 *Amphorophora lonicercicola* Takahashi, 1921; 6. *Omeimegoura* n. g. 模式屬 *Omeimegoura nigrotibiae* n. sp; 7. *Ericolobium* n. g. 模式屬 *Macrosiphum itoe* Takahashi, 1923; 8. *Neoacyrthosiphon* n. g. 模式屬 *Macrosiphum taiheisanum* Takahashi 1935 9. *Sinosiphoniella* n. g. 模式屬 *Macrosiphoniella kuwayamai* Takahashi, 1941.

新種亦九，即 1. *Myzus urticae* n. sp. 產四川及西康，2. *Myzus tsengi n.* sp. 產四川，3. *Rhopalosiphoninus takahashii* n. sp. 產臺灣，4. *Omeimegoura nigrotibiae* n. sp. 產四川，5. *Hyalopteroides sinensis* n. sp. 產四川，6. *Acyrthosiphon elaeocarpi* n. sp. 產臺灣，7. *Macrosiphum flavum* n. sp. 產四川，8. *Dactynotus helianthi* n. sp. 產四川，9. *Uromelan omeishanensis* n. sp. 產四川，此外 *Subacyrthosiphon hoffmanni* (Takahashi, 1937) 之有翅胎生成蟲爲初次發現，亦記述其形態，以求完全。模式標本中除 *Hyalopteroides sinensis* n. sp. cotype 一片，存於荷蘭 H. R. Lambers 外，所有模式屬及種均保存於臺灣省農業試驗所昆蟲標本館中。

* 本著作之完成得國家長期發展科學委員會之補助，特誌申謝。